

THE NAUTICAL ALMANAC

FOR THE YEAR
1969

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1967

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A2 ALTITUDE CORRECTION TABLES 10°-90°—SUN, STARS, PLANETS

OCT.-MAR. SUN			APR.-SEPT.		
App. Alt.	Lower Limb	Upper Limb	App. Alt.	Lower Limb	Upper Limb
9 34	+10.8	-22.7	9 39	+10.6	-22.4
9 45	+10.9	-22.6	9 51	+10.7	-22.3
9 56	+11.0	-22.5	10 03	+10.8	-22.2
10 08	+11.1	-22.4	10 15	+10.9	-22.1
10 21	+11.2	-22.3	10 27	+11.0	-22.0
10 34	+11.3	-22.2	10 40	+11.1	-21.9
10 47	+11.4	-22.1	10 54	+11.2	-21.8
11 01	+11.5	-22.0	11 08	+11.3	-21.7
11 15	+11.6	-21.9	11 23	+11.4	-21.6
11 30	+11.7	-21.8	11 38	+11.5	-21.5
11 46	+11.8	-21.7	11 54	+11.6	-21.4
12 02	+11.9	-21.6	12 10	+11.7	-21.3
12 19	+12.0	-21.5	12 28	+11.8	-21.2
12 37	+12.1	-21.4	12 46	+11.9	-21.1
12 55	+12.2	-21.3	13 05	+12.0	-21.0
13 14	+12.3	-21.2	13 24	+12.1	-20.9
13 35	+12.4	-21.1	13 45	+12.2	-20.8
13 56	+12.5	-21.0	14 07	+12.3	-20.7
14 18	+12.6	-20.9	14 30	+12.4	-20.6
14 42	+12.7	-20.8	14 54	+12.5	-20.5
15 06	+12.8	-20.7	15 19	+12.6	-20.4
15 32	+12.9	-20.6	15 46	+12.7	-20.3
15 59	+13.0	-20.5	16 14	+12.8	-20.2
16 28	+13.1	-20.4	16 44	+12.9	-20.1
16 59	+13.2	-20.3	17 15	+13.0	-20.0
17 32	+13.3	-20.2	17 48	+13.1	-19.9
18 06	+13.4	-20.1	18 24	+13.2	-19.8
18 42	+13.5	-20.0	19 01	+13.3	-19.7
19 21	+13.6	-19.9	19 42	+13.4	-19.6
20 03	+13.7	-19.8	20 25	+13.5	-19.5
20 48	+13.8	-19.7	21 11	+13.6	-19.4
21 35	+13.9	-19.6	22 00	+13.7	-19.3
22 26	+14.0	-19.5	22 54	+13.8	-19.2
23 22	+14.1	-19.4	23 51	+13.9	-19.1
24 21	+14.2	-19.3	24 53	+14.0	-19.0
25 26	+14.3	-19.2	26 00	+14.1	-18.9
26 36	+14.4	-19.1	27 13	+14.2	-18.8
27 52	+14.5	-19.0	28 33	+14.3	-18.7
29 15	+14.6	-18.9	30 00	+14.4	-18.6
30 46	+14.7	-18.8	31 35	+14.5	-18.5
32 26	+14.8	-18.7	33 20	+14.6	-18.4
34 17	+14.9	-18.6	35 17	+14.7	-18.3
36 20	+15.0	-18.5	37 26	+14.8	-18.2
38 36	+15.1	-18.4	39 50	+14.9	-18.1
41 08	+15.2	-18.3	42 31	+15.0	-18.0
43 59	+15.3	-18.2	45 31	+15.1	-17.9
47 10	+15.4	-18.1	48 55	+15.2	-17.8
50 46	+15.5	-18.0	52 44	+15.3	-17.7
54 49	+15.6	-17.9	57 02	+15.4	-17.6
59 23	+15.7	-17.8	61 51	+15.5	-17.5
64 30	+15.8	-17.7	67 17	+15.6	-17.4
70 12	+15.9	-17.6	73 16	+15.7	-17.3
76 26	+16.0	-17.5	79 43	+15.8	-17.2
83 05	+16.1	-17.4	86 32	+15.9	-17.1
90 00			90 00		

STARS AND PLANETS		
App. Alt.	Corr ^a	App. Additional Corr ^a
1969		
VENUS		
Jan. 1-Feb. 1		
9 56	-5.3	0°
10 08	-5.2	47 +0.2
10 20	-5.1	Feb. 2-Feb. 28
10 33	-5.0	0°
10 46	-4.9	46 +0.3
11 00	-4.8	Mar. 1-Mar. 17
11 14	-4.7	0°
11 29	-4.6	11 +0.4
11 45	-4.5	12 +0.5
12 01	-4.4	41
12 18	-4.3	Mar. 18-Mar. 25
12 35	-4.2	0°
12 54	-4.1	6 +0.5
13 13	-4.0	20 +0.6
13 33	-3.9	31 +0.7
13 54	-3.8	Mar. 26-Apr. 22
14 16	-3.7	0°
14 40	-3.6	4 +0.6
15 04	-3.5	12 +0.7
15 30	-3.4	22 +0.8
15 57	-3.3	Apr. 23-Apr. 30
16 26	-3.2	0°
16 56	-3.1	6 +0.5
17 28	-3.0	20 +0.6
18 02	-2.9	31 +0.7
18 38	-2.8	May 1-May 16
19 17	-2.7	0°
19 58	-2.6	11 +0.4
20 42	-2.5	41 +0.5
21 28	-2.4	May 17-June 29
22 19	-2.3	0°
23 13	-2.2	46 +0.3
24 11	-2.1	June 30-Dec. 31
25 14	-2.0	0°
26 22	-1.9	42 +0.1
27 36	-1.8	MARS
28 56	-1.7	Jan. 1-Mar. 14
30 24	-1.6	0°
32 00	-1.5	60 +0.1
33 45	-1.4	Mar. 15-May 4
35 40	-1.3	0°
37 48	-1.2	41 +0.2
40 08	-1.1	75 +0.1
42 44	-1.0	May 5-July 19
45 36	-0.9	0°
48 47	-0.8	34 +0.3
52 18	-0.7	60 +0.2
56 11	-0.6	80 +0.1
60 28	-0.5	July 20-Oct. 3
65 08	-0.4	0°
70 11	-0.3	41 +0.2
75 34	-0.2	75 +0.1
81 13	-0.1	Oct. 4-Dec. 31
87 03	0.0	0°
90 00		60 +0.1

DIP		
Ht. of Eye	Corr ^a	Ht. of Eye
ft.		
1.1	-1.1	44 - 6.5
1.4	-1.2	45 - 6.6
1.6	-1.3	47 - 6.7
1.9	-1.4	48 - 6.8
2.2	-1.5	49 - 6.9
2.5	-1.6	51 - 7.0
2.8	-1.7	52 - 7.1
3.2	-1.8	54 - 7.2
3.6	-1.9	55 - 7.3
4.0	-2.0	57 - 7.4
4.4	-2.1	58 - 7.5
4.9	-2.2	60 - 7.6
5.3	-2.3	62 - 7.7
5.8	-2.4	63 - 7.8
6.3	-2.5	65 - 7.9
6.9	-2.6	67 - 8.0
7.4	-2.7	68 - 8.1
8.0	-2.8	70 - 8.2
8.6	-2.9	72 - 8.3
9.2	-3.0	74 - 8.4
9.8	-3.1	75 - 8.5
10.5	-3.2	77 - 8.6
11.2	-3.3	79 - 8.7
11.9	-3.4	81 - 8.8
12.6	-3.5	83 - 8.9
13.3	-3.6	85 - 9.0
14.1	-3.7	87 - 9.1
14.9	-3.8	88 - 9.2
15.7	-3.9	90 - 9.3
16.5	-4.0	92 - 9.4
17.4	-4.1	94 - 9.5
18.3	-4.2	96 - 9.6
19.1	-4.3	98 - 9.7
20.1	-4.4	101 - 9.8
21.0	-4.5	103 - 9.9
22.0	-4.6	105 - 10.0
22.9	-4.7	107 - 10.1
23.9	-4.8	109 - 10.2
24.9	-4.9	111 - 10.3
26.0	-5.0	113 - 10.4
27.1	-5.1	116 - 10.5
28.1	-5.2	118 - 10.6
29.2	-5.3	120 - 10.7
30.4	-5.4	122 - 10.8
31.5	-5.5	125 - 10.9
32.7	-5.6	127 - 11.0
33.9	-5.7	129 - 11.1
35.1	-5.8	132 - 11.2
36.3	-5.9	134 - 11.3
37.6	-6.0	136 - 11.4
38.9	-6.1	139 - 11.5
40.1	-6.2	141 - 11.6
41.5	-6.3	144 - 11.7
42.8	-6.4	146 - 11.8
44.2		149

App. Alt. = Apparent altitude = Sextant altitude corrected for index error and dip.

For observations of Venus, see page 260.

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INDEX TO SELECTED STARS

Name	No.	Mag.	S.H.A.	Dec.
<i>Acamar</i>	7	3.1	316°	S. 40°
<i>Achernar</i>	5	0.6	336	S. 57
<i>Acrux</i>	30	1.1	174	S. 63
<i>Adhara</i>	19	1.6	256	S. 29
<i>Aldebaran</i>	10	1.1	291	N. 16
<i>Alioth</i>	32	1.7	167	N. 56
<i>Alkaid</i>	34	1.9	153	N. 49
<i>Al Na'ir</i>	55	2.2	28	S. 47
<i>Alnilam</i>	15	1.8	276	S. 1
<i>Alphard</i>	25	2.2	218	S. 9
<i>Alphecca</i>	41	2.3	127	N. 27
<i>Alpheratz</i>	1	2.2	358	N. 29
<i>Altair</i>	51	0.9	63	N. 9
<i>Ankaa</i>	2	2.4	354	S. 42
<i>Antares</i>	42	1.2	113	S. 26
<i>Arcturus</i>	37	0.2	146	N. 19
<i>Atria</i>	43	1.9	109	S. 69
<i>Avior</i>	22	1.7	235	S. 59
<i>Bellatrix</i>	13	1.7	279	N. 6
<i>Betelgeuse</i>	16	Var.*	272	N. 7
<i>Canopus</i>	17	-0.9	264	S. 53
<i>Capella</i>	12	0.2	281	N. 46
<i>Deneb</i>	53	1.3	50	N. 45
<i>Denebola</i>	28	2.2	183	N. 15
<i>Diphda</i>	4	2.2	349	S. 18
<i>Dubhe</i>	27	2.0	195	N. 62
<i>Elnath</i>	14	1.8	279	N. 29
<i>Eltanin</i>	47	2.4	91	N. 51
<i>Enif</i>	54	2.5	34	N. 10
<i>Fomalhaut</i>	56	1.3	16	S. 30
<i>Gacrux</i>	31	1.6	173	S. 57
<i>Gienah</i>	29	2.8	176	S. 17
<i>Hadar</i>	35	0.9	150	S. 60
<i>Hamal</i>	6	2.2	329	N. 23
<i>Kaus Australis</i>	48	2.0	84	S. 34
<i>Kochab</i>	40	2.2	137	N. 74
<i>Markab</i>	57	2.6	14	N. 15
<i>Menkar</i>	8	2.8	315	N. 4
<i>Menkent</i>	36	2.3	149	S. 36
<i>Miaplacidus</i>	24	1.8	222	S. 70
<i>Mirfak</i>	9	1.9	309	N. 50
<i>Nunki</i>	50	2.1	77	S. 26
<i>Peacock</i>	52	2.1	54	S. 57
<i>Pollux</i>	21	1.2	244	N. 28
<i>Procyon</i>	20	0.5	246	N. 5
<i>Rasalhague</i>	46	2.1	97	N. 13
<i>Regulus</i>	26	1.3	208	N. 12
<i>Rigel</i>	11	0.3	282	S. 8
<i>Rigil Kentaurus</i>	38	0.1	141	S. 61
<i>Sabik</i>	44	2.6	103	S. 16
<i>Schedar</i>	3	2.5	350	N. 56
<i>Shaula</i>	45	1.7	97	S. 37
<i>Sirius</i>	18	-1.6	259	S. 17
<i>Spica</i>	33	1.2	159	S. 11
<i>Suhail</i>	23	2.2	223	S. 43
<i>Vega</i>	49	0.1	81	N. 39
<i>Zubenelgenubi</i>	39	2.9	138	S. 16

No.	Name	Mag.	S.H.A.	Dec.
1	<i>Alpheratz</i>	2.2	358°	N. 29°
2	<i>Ankaa</i>	2.4	354	S. 42
3	<i>Schedar</i>	2.5	350	N. 56
4	<i>Diphda</i>	2.2	349	S. 18
5	<i>Achernar</i>	0.6	336	S. 57
6	<i>Hamal</i>	2.2	329	N. 23
7	<i>Acamar</i>	3.1	316	S. 40
8	<i>Menkar</i>	2.8	315	N. 4
9	<i>Mirfak</i>	1.9	309	N. 50
10	<i>Aldebaran</i>	1.1	291	N. 16
11	<i>Rigel</i>	0.3	282	S. 8
12	<i>Capella</i>	0.2	281	N. 46
13	<i>Bellatrix</i>	1.7	279	N. 6
14	<i>Elnath</i>	1.8	279	N. 29
15	<i>Alnilam</i>	1.8	276	S. 1
16	<i>Betelgeuse</i>	Var.*	272	N. 7
17	<i>Canopus</i>	-0.9	264	S. 53
18	<i>Sirius</i>	-1.6	259	S. 17
19	<i>Adhara</i>	1.6	256	S. 29
20	<i>Procyon</i>	0.5	246	N. 5
21	<i>Pollux</i>	1.2	244	N. 28
22	<i>Avior</i>	1.7	235	S. 59
23	<i>Suhail</i>	2.2	223	S. 43
24	<i>Miaplacidus</i>	1.8	222	S. 70
25	<i>Alphard</i>	2.2	218	S. 9
26	<i>Regulus</i>	1.3	208	N. 12
27	<i>Dubhe</i>	2.0	195	N. 62
28	<i>Denebola</i>	2.2	183	N. 15
29	<i>Gienah</i>	2.8	176	S. 17
30	<i>Acrux</i>	1.1	174	S. 63
31	<i>Gacrux</i>	1.6	173	S. 57
32	<i>Alioth</i>	1.7	167	N. 56
33	<i>Spica</i>	1.2	159	S. 11
34	<i>Alkaid</i>	1.9	153	N. 49
35	<i>Hadar</i>	0.9	150	S. 60
36	<i>Menkent</i>	2.3	149	S. 36
37	<i>Arcturus</i>	0.2	146	N. 19
38	<i>Rigil Kentaurus</i>	0.1	141	S. 61
39	<i>Zubenelgenubi</i>	2.9	138	S. 16
40	<i>Kochab</i>	2.2	137	N. 74
41	<i>Alphecca</i>	2.3	127	N. 27
42	<i>Antares</i>	1.2	113	S. 26
43	<i>Atria</i>	1.9	109	S. 69
44	<i>Sabik</i>	2.6	103	S. 16
45	<i>Shaula</i>	1.7	97	S. 37
46	<i>Rasalhague</i>	2.1	97	N. 13
47	<i>Eltanin</i>	2.4	91	N. 51
48	<i>Kaus Australis</i>	2.0	84	S. 34
49	<i>Vega</i>	0.1	81	N. 39
50	<i>Nunki</i>	2.1	77	S. 26
51	<i>Altair</i>	0.9	63	N. 9
52	<i>Peacock</i>	2.1	54	S. 57
53	<i>Deneb</i>	1.3	50	N. 45
54	<i>Enif</i>	2.5	34	N. 10
55	<i>Al Na'ir</i>	2.2	28	S. 47
56	<i>Fomalhaut</i>	1.3	16	S. 30
57	<i>Markab</i>	2.6	14	N. 15

ALTITUDE CORRECTION TABLES 10°-90°—SUN, STARS, PLANETS

OCT.-MAR. SUN			APR.-SEPT.		
App. Alt.	Lower Limb	Upper Limb	App. Alt.	Lower Limb	Upper Limb
9 34	+10.8	-22.7	9 39	+10.6	-22.4
9 45	+10.9	-22.6	9 51	+10.7	-22.3
9 56	+11.0	-22.5	10 03	+10.8	-22.2
10 08	+11.1	-22.4	10 15	+10.9	-22.1
10 21	+11.2	-22.3	10 27	+11.0	-22.0
10 34	+11.3	-22.2	10 40	+11.1	-21.9
10 47	+11.4	-22.1	10 54	+11.2	-21.8
11 01	+11.5	-22.0	11 08	+11.3	-21.7
11 15	+11.6	-21.9	11 23	+11.4	-21.6
11 30	+11.7	-21.8	11 38	+11.5	-21.5
11 46	+11.8	-21.7	11 54	+11.6	-21.4
12 02	+11.9	-21.6	12 10	+11.7	-21.3
12 19	+12.0	-21.5	12 28	+11.8	-21.2
12 37	+12.1	-21.4	12 46	+11.9	-21.1
12 55	+12.2	-21.3	13 05	+12.0	-21.0
13 14	+12.3	-21.2	13 24	+12.1	-20.9
13 35	+12.4	-21.1	13 45	+12.2	-20.8
13 56	+12.5	-21.0	14 07	+12.3	-20.7
14 18	+12.6	-20.9	14 30	+12.4	-20.6
14 42	+12.7	-20.8	14 54	+12.5	-20.5
15 06	+12.8	-20.7	15 19	+12.6	-20.4
15 32	+12.9	-20.6	15 46	+12.7	-20.3
15 59	+13.0	-20.5	16 14	+12.8	-20.2
16 28	+13.1	-20.4	16 44	+12.9	-20.1
16 59	+13.2	-20.3	17 15	+13.0	-20.0
17 32	+13.3	-20.2	17 48	+13.1	-19.9
18 06	+13.4	-20.1	18 24	+13.2	-19.8
18 42	+13.5	-20.0	19 01	+13.3	-19.7
19 21	+13.6	-19.9	19 42	+13.4	-19.6
20 03	+13.7	-19.8	20 25	+13.5	-19.5
20 48	+13.8	-19.7	21 11	+13.6	-19.4
21 35	+13.9	-19.6	22 00	+13.7	-19.3
22 26	+14.0	-19.5	22 54	+13.8	-19.2
23 22	+14.1	-19.4	23 51	+13.9	-19.1
24 21	+14.2	-19.3	24 53	+14.0	-19.0
25 26	+14.3	-19.2	26 00	+14.1	-18.9
26 36	+14.4	-19.1	27 13	+14.2	-18.8
27 52	+14.5	-19.0	28 33	+14.3	-18.7
29 15	+14.6	-18.9	30 00	+14.4	-18.6
30 46	+14.7	-18.8	31 35	+14.5	-18.5
32 26	+14.8	-18.7	33 20	+14.6	-18.4
34 17	+14.9	-18.6	35 17	+14.7	-18.3
36 20	+15.0	-18.5	37 26	+14.8	-18.2
38 36	+15.1	-18.4	39 50	+14.9	-18.1
41 08	+15.2	-18.3	42 31	+15.0	-18.0
43 59	+15.3	-18.2	45 31	+15.1	-17.9
47 10	+15.4	-18.1	48 55	+15.2	-17.8
50 46	+15.5	-18.0	52 44	+15.3	-17.7
54 49	+15.6	-17.9	57 02	+15.4	-17.6
59 23	+15.7	-17.8	61 51	+15.5	-17.5
64 30	+15.8	-17.7	67 17	+15.6	-17.4
70 12	+15.9	-17.6	73 16	+15.7	-17.3
76 26	+16.0	-17.5	79 43	+15.8	-17.2
83 05	+16.1	-17.4	86 32	+15.9	-17.1
90 00			90 00		

STARS AND PLANETS			
App. Alt.	Corr ^a	App. Alt.	Additional Corr ^a
1969			
VENUS			
Jan. 1-Feb. 1			
9 56	-5.3	0°	
10 08	-5.2	1°	+0.2
10 20	-5.1	47	
10 33	-5.0	Feb. 2-Feb. 28	
10 46	-4.9	0°	
11 00	-4.8	46	+0.3
11 14	-4.7	Mar. 1-Mar. 17	
11 29	-4.6	0°	
11 45	-4.5	11	+0.4
12 01	-4.4	41	+0.5
12 18	-4.3	Mar. 18-Mar. 25	
12 35	-4.2	0°	
12 54	-4.1	6	+0.5
13 13	-4.0	20	+0.6
13 33	-3.9	31	+0.7
13 54	-3.8	Mar. 26-Apr. 22	
14 16	-3.7	0°	
14 40	-3.6	4	+0.6
15 04	-3.5	12	+0.7
15 30	-3.4	22	+0.8
15 57	-3.3	Apr. 23-Apr. 30	
16 26	-3.2	0°	
16 56	-3.1	6	+0.5
17 28	-3.0	20	+0.6
18 02	-2.9	31	+0.7
18 38	-2.8	May 1-May 16	
19 17	-2.7	0°	
19 58	-2.6	11	+0.4
20 42	-2.5	41	+0.5
21 28	-2.4	May 17-June 29	
22 19	-2.3	0°	
23 13	-2.2	46	+0.3
24 11	-2.1	June 30-Dec. 31	
25 14	-2.0	0°	
26 22	-1.9	42	+0.1
27 36	-1.8	MARS	
28 56	-1.7	Jan. 1-Mar. 14	
30 24	-1.6	0°	
32 00	-1.5	60	+0.1
33 45	-1.4	Mar. 15-May 4	
35 40	-1.3	0°	
37 48	-1.2	41	+0.2
40 08	-1.1	75	+0.1
42 44	-1.0	May 5-July 19	
45 36	-0.9	0°	
48 47	-0.8	34	+0.3
52 18	-0.7	60	+0.2
56 11	-0.6	80	+0.1
60 28	-0.5	July 20-Oct. 3	
65 08	-0.4	0°	
70 11	-0.3	41	+0.2
75 34	-0.2	75	+0.1
81 13	-0.1	Oct. 4-Dec. 31	
87 03	0.0	0°	
90 00		60	+0.1

DIP			
Ht. of Eye	Corr ^a	Ht. of Eye	Corr ^a
ft.			
1.1	-1.1	44	-6.5
1.4	-1.2	45	-6.6
1.6	-1.3	47	-6.7
1.9	-1.4	48	-6.8
2.2	-1.5	49	-6.9
2.5	-1.6	51	-7.0
2.8	-1.7	52	-7.1
3.2	-1.8	54	-7.2
3.6	-1.9	55	-7.3
4.0	-2.0	57	-7.4
4.4	-2.1	58	-7.5
4.9	-2.2	60	-7.6
5.3	-2.3	62	-7.7
5.8	-2.4	63	-7.8
6.3	-2.5	65	-7.9
6.9	-2.6	67	-8.0
7.4	-2.7	68	-8.1
8.0	-2.8	70	-8.2
8.6	-2.9	72	-8.3
9.2	-3.0	74	-8.4
9.8	-3.1	75	-8.5
10.5	-3.2	77	-8.6
11.2	-3.3	79	-8.7
11.9	-3.4	81	-8.8
12.6	-3.5	83	-8.9
13.3	-3.6	85	-9.0
14.1	-3.7	87	-9.1
14.9	-3.8	88	-9.2
15.7	-3.9	90	-9.3
16.5	-4.0	92	-9.4
17.4	-4.1	94	-9.5
18.3	-4.2	96	-9.6
19.1	-4.3	98	-9.7
20.1	-4.4	101	-9.8
21.0	-4.5	103	-9.9
22.0	-4.6	105	-10.0
22.9	-4.7	107	-10.1
23.9	-4.8	109	-10.2
24.9	-4.9	111	-10.3
26.0	-5.0	113	-10.4
27.1	-5.1	116	-10.5
28.1	-5.2	118	-10.6
29.2	-5.3	120	-10.7
30.4	-5.4	122	-10.8
31.5	-5.5	125	-10.9
32.7	-5.6	127	-11.0
33.9	-5.7	129	-11.1
35.1	-5.8	132	-11.2
36.3	-5.9	134	-11.3
37.6	-6.0	136	-11.4
38.9	-6.1	139	-11.5
40.1	-6.2	141	-11.6
41.5	-6.3	144	-11.7
42.8	-6.4	146	-11.8
44.2		149	

App. Alt. = Apparent altitude = Sextant altitude corrected for index error and dip.

For daylight observations of Venus, see page 260.

ALTITUDE CORRECTION TABLES 0°-10°—SUN, STARS, PLANETS A3

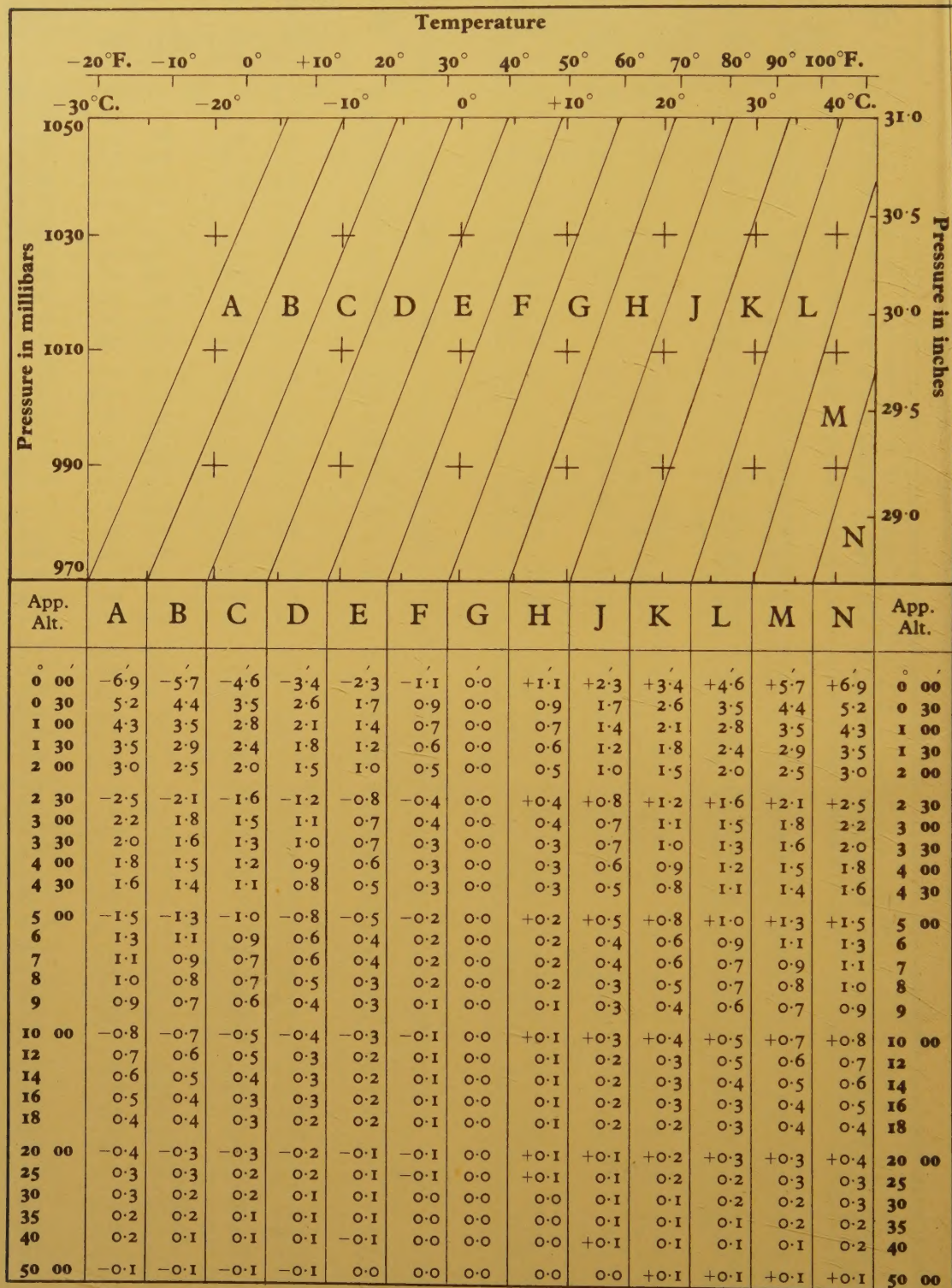
App. Alt.	OCT.-MAR. SUN APR.-SEPT.				STARS PLANETS
	Lower Limb	Upper Limb	Lower Limb	Upper Limb	
0 00	-18.2	-51.7	-18.4	-51.4	-34.5
03	17.5	51.0	17.8	50.8	33.8
06	16.9	50.4	17.1	50.1	33.2
09	16.3	49.8	16.5	49.5	32.6
12	15.7	49.2	15.9	48.9	32.0
15	15.1	48.6	15.3	48.3	31.4
0 18	-14.5	-48.0	-14.8	-47.8	-30.8
21	14.0	47.5	14.2	47.2	30.3
24	13.5	47.0	13.7	46.7	29.8
27	12.9	46.4	13.2	46.2	29.2
30	12.4	45.9	12.7	45.7	28.7
33	11.9	45.4	12.2	45.2	28.2
0 36	-11.5	-45.0	-11.7	-44.7	-27.8
39	11.0	44.5	11.2	44.2	27.3
42	10.5	44.0	10.8	43.8	26.8
45	10.1	43.6	10.3	43.3	26.4
48	9.6	43.1	9.9	42.9	25.9
51	9.2	42.7	9.5	42.5	25.5
0 54	- 8.8	-42.3	- 9.1	-42.1	-25.1
0 57	8.4	41.9	8.7	41.7	24.7
1 00	8.0	41.5	8.3	41.3	24.3
03	7.7	41.2	7.9	40.9	24.0
06	7.3	40.8	7.5	40.5	23.6
09	6.9	40.4	7.2	40.2	23.2
1 12	- 6.6	-40.1	- 6.8	-39.8	-22.9
15	6.2	39.7	6.5	39.5	22.5
18	5.9	39.4	6.2	39.2	22.2
21	5.6	39.1	5.8	38.8	21.9
24	5.3	38.8	5.5	38.5	21.6
27	4.9	38.4	5.2	38.2	21.2
1 30	- 4.6	-38.1	- 4.9	-37.9	-20.9
35	4.2	37.7	4.4	37.4	20.5
40	3.7	37.2	4.0	37.0	20.0
45	3.2	36.7	3.5	36.5	19.5
50	2.8	36.3	3.1	36.1	19.1
1 55	2.4	35.9	2.6	35.6	18.7
2 00	- 2.0	-35.5	- 2.2	-35.2	-18.3
05	1.6	35.1	1.8	34.8	17.9
10	1.2	34.7	1.5	34.5	17.5
15	0.9	34.4	1.1	34.1	17.2
20	0.5	34.0	0.8	33.8	16.8
25	- 0.2	33.7	0.4	33.4	16.5
2 30	+ 0.2	-33.3	- 0.1	-33.1	-16.1
35	0.5	33.0	+ 0.2	32.8	15.8
40	0.8	32.7	0.5	32.5	15.5
45	1.1	32.4	0.8	32.2	15.2
50	1.4	32.1	1.1	31.9	14.9
2 55	1.6	31.9	1.4	31.6	14.7
3 00	+ 1.9	-31.6	+ 1.7	-31.3	-14.4
05	2.2	31.3	1.9	31.1	14.1
10	2.4	31.1	2.1	30.9	13.9
15	2.6	30.9	2.4	30.6	13.7
20	2.9	30.6	2.6	30.4	13.4
25	3.1	30.4	2.9	30.1	13.2
3 30	+ 3.3	-30.2	+ 3.1	-29.9	-13.0

App. Alt.	OCT.-MAR. SUN APR.-SEPT.				STARS PLANETS
	Lower Limb	Upper Limb	Lower Limb	Upper Limb	
3 30	+ 3.3	-30.2	+ 3.1	-29.9	-13.0
35	3.6	29.9	3.3	29.7	12.7
40	3.8	29.7	3.5	29.5	12.5
45	4.0	29.5	3.7	29.3	12.3
50	4.2	29.3	3.9	29.1	12.1
3 55	4.4	29.1	4.1	28.9	11.9
4 00	+ 4.5	-29.0	+ 4.3	-28.7	-11.8
05	4.7	28.8	4.5	28.5	11.6
10	4.9	28.6	4.6	28.4	11.4
15	5.1	28.4	4.8	28.2	11.2
20	5.2	28.3	5.0	28.0	11.1
25	5.4	28.1	5.1	27.9	10.9
4 30	+ 5.6	-27.9	+ 5.3	-27.7	-10.7
35	5.7	27.8	5.5	27.5	10.6
40	5.9	27.6	5.6	27.4	10.4
45	6.0	27.5	5.8	27.2	10.3
50	6.2	27.3	5.9	27.1	10.1
4 55	6.3	27.2	6.0	27.0	10.0
5 00	+ 6.4	-27.1	+ 6.2	-26.8	- 9.9
05	6.6	26.9	6.3	26.7	9.7
10	6.7	26.8	6.4	26.6	9.6
15	6.8	26.7	6.6	26.4	9.5
20	6.9	26.6	6.7	26.3	9.4
25	7.1	26.4	6.8	26.2	9.2
5 30	+ 7.2	-26.3	+ 6.9	-26.1	- 9.1
35	7.3	26.2	7.0	26.0	9.0
40	7.4	26.1	7.2	25.8	8.9
45	7.5	26.0	7.3	25.7	8.8
50	7.6	25.9	7.4	25.6	8.7
5 55	7.7	25.8	7.5	25.5	8.6
6 00	+ 7.8	-25.7	+ 7.6	-25.4	- 8.5
10	8.0	25.5	7.8	25.2	8.3
20	8.2	25.3	8.0	25.0	8.1
30	8.4	25.1	8.1	24.9	7.9
40	8.6	24.9	8.3	24.7	7.7
6 50	8.7	24.8	8.5	24.5	7.6
7 00	+ 8.9	-24.6	+ 8.6	-24.4	- 7.4
10	9.1	24.4	8.8	24.2	7.2
20	9.2	24.3	9.0	24.0	7.1
30	9.3	24.2	9.1	23.9	7.0
40	9.5	24.0	9.2	23.8	6.8
7 50	9.6	23.9	9.4	23.6	6.7
8 00	+ 9.7	-23.8	+ 9.5	-23.5	- 6.6
10	9.9	23.6	9.6	23.4	6.4
20	10.0	23.5	9.7	23.3	6.3
30	10.1	23.4	9.8	23.2	6.2
40	10.2	23.3	10.0	23.0	6.1
8 50	10.3	23.2	10.1	22.9	6.0
9 00	+ 10.4	-23.1	+ 10.2	-22.8	- 5.9
10	10.5	23.0	10.3	22.7	5.8
20	10.6	22.9	10.4	22.6	5.7
30	10.7	22.8	10.5	22.5	5.6
40	10.8	22.7	10.6	22.4	5.5
9 50	10.9	22.6	10.6	22.4	5.4
10 00	+ 11.0	-22.5	+ 10.7	-22.3	- 5.3

Additional corrections for temperature and pressure are given on the following page.
For bubble sextant observations ignore dip and use the star corrections for Sun, planets, and stars.

A4 ALTITUDE CORRECTION TABLES—ADDITIONAL CORRECTIONS

ADDITIONAL REFRACTION CORRECTIONS FOR NON-STANDARD CONDITIONS



The graph is entered with arguments temperature and pressure to find a zone letter; using as arguments this zone letter and apparent altitude (sextant altitude corrected for dip), a correction is taken from the table. This correction is to be applied to the sextant altitude in addition to the corrections for standard conditions (for the Sun, planets and stars from the inside front cover and for the Moon from the inside back cover).

THE NAUTICAL ALMANAC

FOR THE YEAR

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PREFACE

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April, 1967

RELIGIOUS CALENDARS

Epiphany	Jan. 6	Low Sunday	Apr. 13
Septuagesima Sunday	Feb. 2	Rogation Sunday	May 11
Quinquagesima Sunday	" 16	Ascension Day—Holy Thursday	" 15
Ash Wednesday	" 19	Whit Sunday—Pentecost	" 25
Quadragesima Sunday	" 23	Trinity Sunday	June 1
Palm Sunday	Mar. 30	Corpus Christi	" 5
Good Friday	Apr. 4	First Sunday in Advent	Nov. 30
Easter Day	" 6	Christmas Day (Thursday)	Dec. 25
Passover, First day of (Pesach)	Apr. 3	Day of Atonement (Yom Kippur)	Sept. 22
Feast of Weeks (Shebuoth)	May 23	Tabernacles, First day of (Succoth)	" 27
Jewish New Year 5730 (Rosh Hashanah) Sept. 13			

Mohammedan New Year (1389)	Mar. 20	Ramadân, First day of (tabular)	Nov. 11

CIVIL CALENDAR—BRITISH COMMONWEALTH

Australia Day	Jan. 26	Birthday of Queen Elizabeth II	Apr. 21
Republic Day (India)	" 26	St. George (England)	" 23
Independence Commemoration Day (Ceylon)	Feb. 4	Commonwealth Day	May 24
Accession of Queen Elizabeth II	" 6	Birthday of Prince Philip, Duke of Edinburgh	June 10
National Day (New Zealand)	" 6	Dominion Day (Canada)	July 1
St. David (Wales)	Mar. 1	Remembrance Sunday	Nov. 9
St. Patrick (Ireland)	" 17	Birthday of the Prince of Wales	" 14
Pakistan Day	" 23	St. Andrew (Scotland)	" 30

Bank Holidays in England, Wales and Northern Ireland—Apr. 7 May 26* Sept. 1* Dec. 26

Scotland—Jan. 1 Apr. 4 May 26* Sept. 1* Dec. 25

Commonwealth Day may be observed in Great Britain on June 14*.

*These dates may be changed at short notice.

CIVIL CALENDAR—UNITED STATES OF AMERICA

New Year's Day	Jan. 1	Labor Day	Sept. 1
Lincoln's Birthday	Feb. 12	Columbus Day	Oct. 12
Washington's Birthday	" 22	Election Day (in certain States)	Nov. 4
Memorial Day	May 30	Veterans Day	" 11
Independence Day	July 4	Thanksgiving Day	" 27

Holidays falling on Sunday are normally observed on the following day.

PHASES OF THE MOON

New Moon	First Quarter	Full Moon	Last Quarter
d h m	d h m	d h m	d h m
Jan. 18 04 59	Jan. 25 08 23	Jan. 3 18 28	Jan. 11 14 00
Feb. 16 16 25	Feb. 24 04 30	Feb. 2 12 56	Feb. 10 00 08
Mar. 18 04 51	Mar. 26 00 48	Mar. 4 05 17	Mar. 11 07 44
Apr. 16 18 16	Apr. 24 19 45	Apr. 2 18 45	Apr. 9 13 58
May 16 08 26	May 24 12 15	May 2 05 13	May 8 20 12
June 14 23 09	June 23 01 44	May 31 13 18	June 7 03 39
July 14 14 11	July 22 12 10	June 29 20 04	July 6 13 17
Aug. 13 05 17	Aug. 20 20 03	July 29 02 45	Aug. 5 01 38
Sept. 11 19 56	Sept. 19 02 25	Aug. 27 10 32	Sept. 3 16 58
Oct. 11 09 39	Oct. 18 08 32	Sept. 25 20 21	Oct. 3 11 05
Nov. 9 22 11	Nov. 16 15 45	Oct. 25 08 44	Nov. 2 07 14
Dec. 9 09 42	Dec. 16 01 09	Nov. 23 23 54	Dec. 2 03 50
		Dec. 23 17 35	Dec. 31 22 52

DAYS OF THE WEEK AND DAYS OF THE YEAR

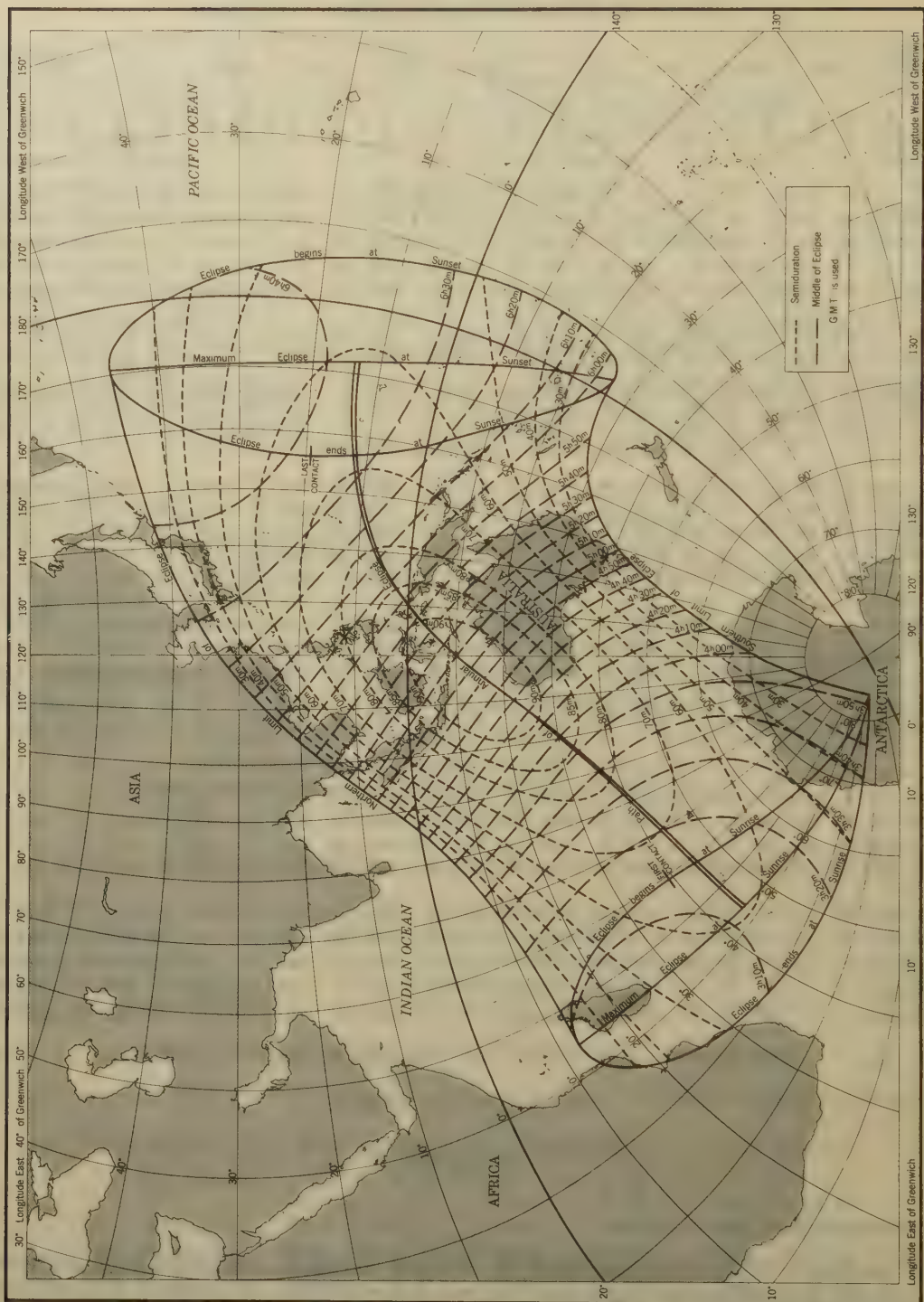
Day of Month	JAN.		FEB.		MAR.		APR.		MAY		JUNE		JULY		AUG.		SEPT.		OCT.		NOV.		DEC.		
	Week	Year	Week	Year	Week	Year	Week	Year	Week	Year	Week	Year	Week	Year	Week	Year	Week	Year	Week	Year	Week	Year	Week	Year	
1	W.	1	S.	32	S.	60	Tu.	91	Th.	121	S.	152	Tu.	182	F.	213	M.	244	W.	274	S.	305	M.	335	
2	Th.	2	S.	33	S.	61	W.	92	F.	122	M.	153	W.	183	S.	214	Tu.	245	Th.	275	S.	306	Tu.	336	
3	F.	3	M.	34	M.	62	Th.	93	S.	123	Tu.	154	Th.	184	S.	215	W.	246	F.	276	M.	307	W.	337	
4	S.	4	Tu.	35	Tu.	63	F.	94	S.	124	W.	155	F.	185	M.	216	Th.	247	S.	277	Tu.	308	Th.	338	
5	S.	5	W.	36	W.	64	S.	95	M.	125	Th.	156	S.	186	Tu.	217	F.	248	S.	278	W.	309	F.	339	
6	M.	6	Th.	37	Th.	65	S.	96	Tu.	126	F.	157	S.	187	W.	218	S.	249	M.	279	Th.	310	S.	340	
7	Tu.	7	F.	38	F.	66	M.	97	W.	127	S.	158	M.	188	Th.	219	S.	250	Tu.	280	F.	311	S.	341	
8	W.	8	S.	39	S.	67	Tu.	98	Th.	128	S.	159	Tu.	189	F.	220	M.	251	W.	281	S.	312	M.	342	
9	Th.	9	S.	40	S.	68	W.	99	F.	129	M.	160	W.	190	S.	221	Tu.	252	Th.	282	S.	313	Tu.	343	
10	F.	10	M.	41	M.	69	Th.	100	S.	130	Tu.	161	Th.	191	S.	222	W.	253	F.	283	M.	314	W.	344	
11	S.	11	Tu.	42	Tu.	70	F.	101	S.	131	W.	162	F.	192	M.	223	Th.	254	S.	284	Tu.	315	Th.	345	
12	S.	12	W.	43	W.	71	S.	102	M.	132	Th.	163	S.	193	Tu.	224	F.	255	S.	285	W.	316	F.	346	
13	M.	13	Th.	44	Th.	72	S.	103	Tu.	133	F.	164	S.	194	W.	225	S.	256	M.	286	Th.	317	S.	347	
14	Tu.	14	F.	45	F.	73	M.	104	W.	134	S.	165	M.	195	Th.	226	S.	257	Tu.	287	F.	318	S.	348	
15	W.	15	S.	46	S.	74	Tu.	105	Th.	135	S.	166	Tu.	196	F.	227	M.	258	W.	288	S.	319	M.	349	
16	Th.	16	S.	47	S.	75	W.	106	F.	136	M.	167	W.	197	S.	228	Tu.	259	Th.	289	S.	320	Tu.	350	
17	F.	17	M.	48	M.	76	Th.	107	S.	137	Tu.	168	Th.	198	S.	229	W.	260	F.	290	M.	321	W.	351	
18	S.	18	Tu.	49	Tu.	77	F.	108	S.	138	W.	169	F.	199	M.	230	Th.	261	S.	291	Tu.	322	Th.	352	
19	S.	19	W.	50	W.	78	S.	109	M.	139	Th.	170	S.	200	Tu.	231	F.	262	S.	292	W.	323	F.	353	
20	M.	20	Th.	51	Th.	79	S.	110	Tu.	140	F.	171	S.	201	W.	232	S.	263	M.	293	Th.	324	S.	354	
21	Tu.	21	F.	52	F.	80	M.	111	W.	141	S.	172	M.	202	Th.	233	S.	264	Tu.	294	F.	325	S.	355	
22	W.	22	S.	53	S.	81	Tu.	112	Th.	142	S.	173	Tu.	203	F.	234	M.	265	W.	295	S.	326	M.	356	
23	Th.	23	S.	54	S.	82	W.	113	F.	143	M.	174	W.	204	S.	235	Tu.	266	Th.	296	S.	327	Tu.	357	
24	F.	24	M.	55	M.	83	Th.	114	S.	144	Tu.	175	Th.	205	S.	236	W.	267	F.	297	M.	328	W.	358	
25	S.	25	Tu.	56	Tu.	84	F.	115	S.	145	W.	176	F.	206	M.	237	Th.	268	S.	298	Tu.	329	Th.	359	
26	S.	26	W.	57	W.	85	S.	116	M.	146	Th.	177	S.	207	Tu.	238	F.	269	S.	299	W.	330	F.	360	
27	M.	27	Th.	58	Th.	86	S.	117	Tu.	147	F.	178	S.	208	W.	239	S.	270	M.	300	Th.	331	S.	361	
28	Tu.	28	F.	59	F.	87	M.	118	W.	148	S.	179	M.	209	Th.	240	S.	271	Tu.	301	F.	332	S.	362	
29	W.	29			S.	88	Tu.	119	Th.	149	S.	180	Tu.	210	F.	241	M.	272	W.	302	S.	333	M.	363	
30	Th.	30			S.	89	W.	120	F.	150	M.	181	W.	211	S.	242	Tu.	273	Th.	303	S.	334	Tu.	364	
31	F.	31			M.	90			S.	151			Th.	212	S.	243			F.	304				W.	365

ECLIPSES

There are two eclipses, both of the Sun.

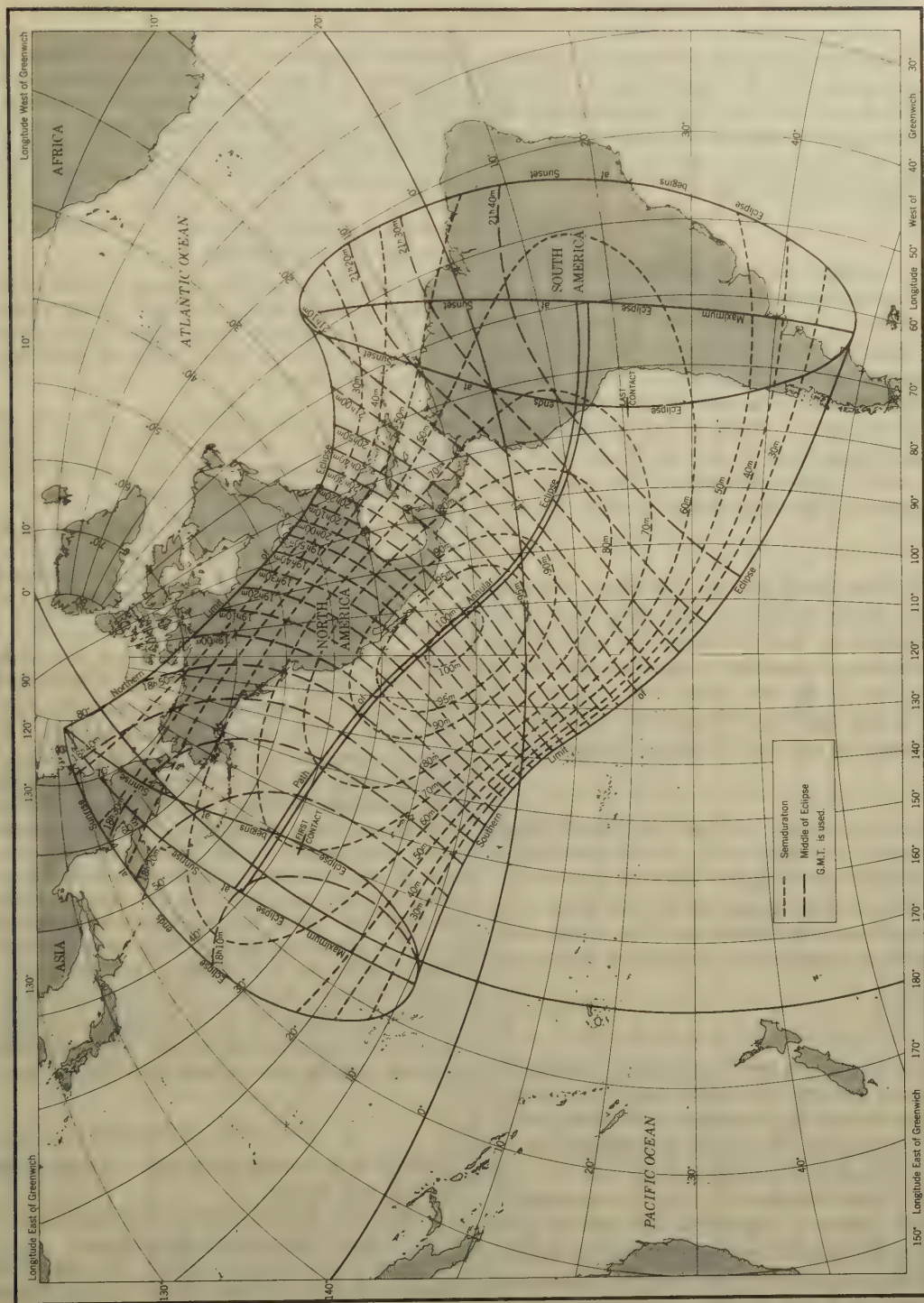
I. *An Annular Eclipse of the Sun*, March 18. See map on page 6. The eclipse begins at 02^h 06^m and ends at 07^h 42^m; the annular phase begins at 03^h 09^m and ends at 06^h 40^m. The duration of the annular phase decreases from 70 seconds in the Indian Ocean to 21 seconds in Indonesia and then increases again to 75 seconds in the Pacific Ocean.

II. *An Annular Eclipse of the Sun*, September 11. See map on page 7. The eclipse begins at 17^h 01^m and ends at 22^h 55^m; the annular phase begins at 18^h 07^m and ends at 21^h 50^m. The maximum duration of the annular phase is 3^m 10^s.



SOLAR ECLIPSE DIAGRAMS

The principal features shown on the above diagrams are: the paths of total and annular eclipses; the northern and southern limits of partial eclipse; the sunrise and sunset curves; and contour lines showing the time of middle of eclipse and the semi-duration of partial eclipse. The times of beginning and end of partial eclipse at any place can be found by applying the semi-duration to the time of middle of the eclipse, both being interpolated for that place from the contour lines.



SOLAR ECLIPSE DIAGRAMS

For total and annular eclipses the mid-times of the total and annular phases are generally within 5 minutes of those given for the middle of eclipse; but semi-durations, which depend on the precise position relative to the path, are not given. Further details of the paths and times of central eclipse are given in the *Astronomical Ephemeris* and in the *American Ephemeris*.

POSITIONS OF PLANETS

VENUS is easily identified by its superior brilliance. It is an evening star until the beginning of April. From mid-April until mid-December it is a morning star. For the rest of the year it is too close to the Sun for observation. Venus is in conjunction with Saturn on June 11 and with Jupiter on November 4.

MARS is a morning star until opposition on May 31; it is then an evening star for the rest of the year. Mars is in Virgo at the beginning of the year and moves through Libra and Scorpius before coming to opposition in Ophiuchus. After opposition it moves through Sagittarius and Capricornus and by the end of the year Mars is in Aquarius. There are three conjunctions with *Antares*: Mars is 6° N. of it on March 17, 2° N. on June 3 and $1^\circ.3$ N. on August 12. The reddish tint of Mars should assist in its identification.

JUPITER is a morning star until opposition on March 17; it is then an evening star until the end of September. It is too close to the Sun for observation until the end of October when it becomes a morning star and is visible as such for the rest of the year. Jupiter is in conjunction with Mercury on September 7, September 19 and October 26 and with Venus on November 4.

SATURN is an evening star until the end of March, when it becomes too close to the Sun for observation. From May until opposition on October 29 it is a morning star. It is an evening star for the rest of the year. Saturn is in Pisces at the beginning of the year, moving slowly into Aries. Saturn is in conjunction with Venus on June 11.

MERCURY can only be seen low in the east before sunrise, or low in the west after sunset (about the time of beginning or end of civil twilight). It is visible in the mornings between the following approximate dates : February 4 (+1.6) to March 31 (-1.0), June 7 (+2.3) to July 15 (-1.4), October 6 (+1.3) to November 1 (-0.9); the planet is brighter at the end of each period. It is visible in the evenings between the following approximate dates : January 1 (-0.7) to January 24 (-1.4), April 17 (-1.4) to May 21 (+2.3), July 31 (-1.1) to September 23 (+1.8), December 4 (-0.6) to December 31 (-0.1); the planet is brighter at the beginning of each period. The figures in brackets are the magnitudes.

PLANET DIAGRAM

General Description. The diagram on the opposite page shows, in graphical form for any date during the year, the local mean time of meridian passage of the Sun, of the five planets Mercury, Venus, Mars, Jupiter, and Saturn, and of each 30° of S.H.A. ; intermediate lines, corresponding to particular stars, may be drawn in by the user if he so desires. It is intended to provide a general picture of the availability of planets and stars for observation.

On each side of the line marking the time of meridian passage of the Sun a band, 45^m wide, is shaded to indicate that planets and most stars crossing the meridian within 45^m of the Sun are too close to the Sun for observation.

Method of use and interpretation. For any date the diagram provides immediately the local mean times of meridian passage of the Sun, planets and stars, and thus the following information :

- (a) whether a planet or star is too close to the Sun for observation ;
- (b) whether a planet is a morning or evening star ;
- (c) some indication of its position during twilight ;
- (d) the proximity of other planets.

When the meridian passage occurs at midnight the body is in opposition to the Sun and is visible all night ; planets may be observable in both morning and evening twilights. As the time of meridian passage decreases, the body ceases to be observable in the morning, but its altitude above the eastern horizon during evening twilight gradually increases; this continues until the body is on the meridian at twilight. From then onwards the body is observable above the western horizon and its altitude at evening twilight gradually decreases ; eventually the body becomes too close to the Sun for observation. When the body again becomes visible it is seen as a morning star low in the east ; its altitude at twilight increases until meridian passage occurs at the time of morning twilight. Then, as the time of meridian passage decreases to 0^h , the body is observable in the west in the morning twilight with a gradually decreasing altitude, until it once again reaches opposition.

DO NOT CONFUSE

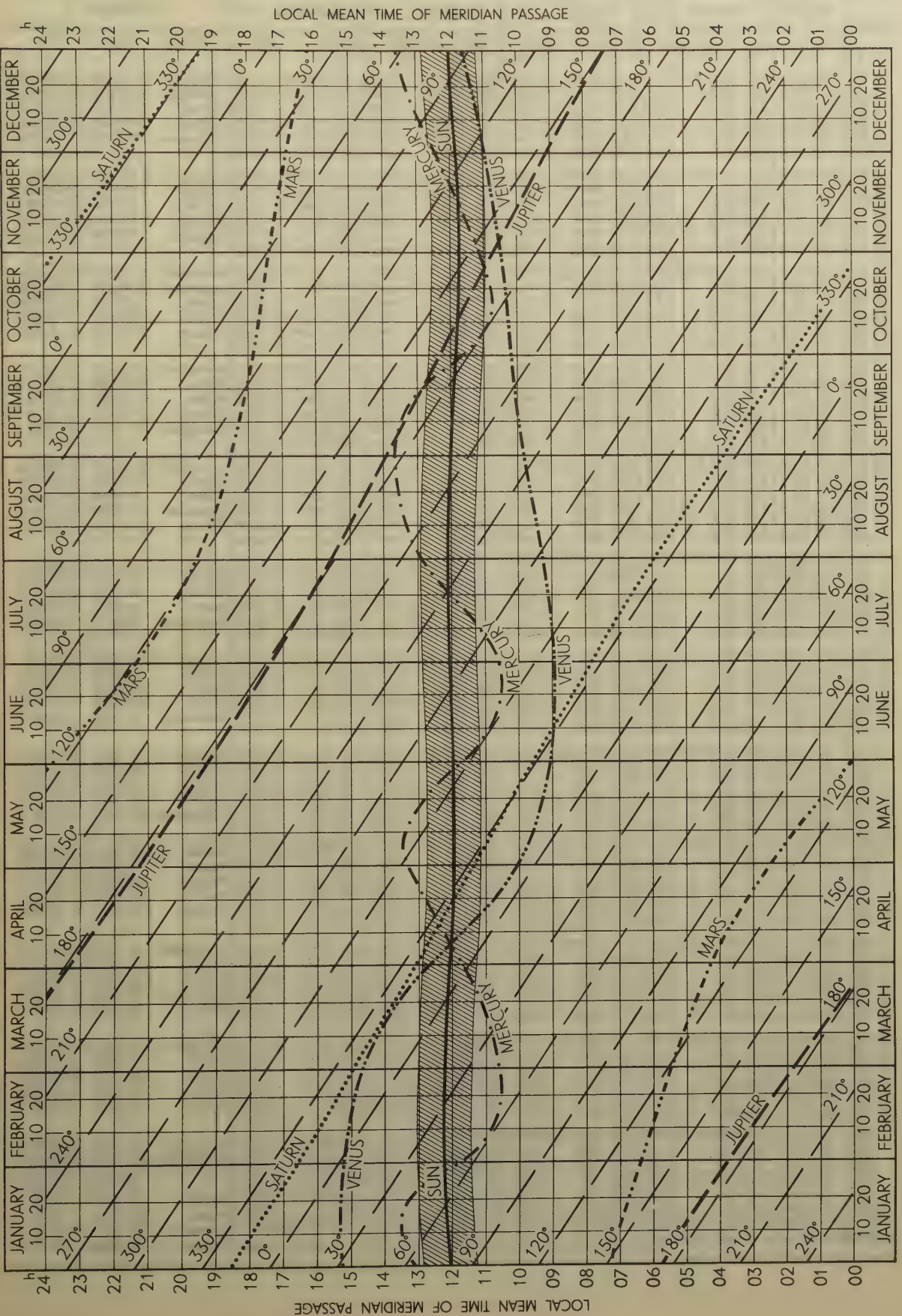
Venus with Saturn in March : Venus is markedly brighter than Saturn.

Venus with Saturn during May and early June : Venus is markedly brighter than Saturn.

Mercury with Jupiter during the second half of August and in September, when Jupiter is always the brighter object.

Mercury with Venus in October, when Venus is much brighter and farther from the Sun than Mercury.

Venus with Jupiter at the end of October and during November, when Venus is always the brighter object.



G.M.T.		ARIES			VENUS -3.8			MARS +1.5			JUPITER -1.7			SATURN +0.7			STARS		
		G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	Name	S.H.A.	Dec.
d	h	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"
WEDNESDAY	00	100	28.1		131	58.7	S 14 30.3	250	55.9	S 10 34.7	274	56.6	S 0 58.3	82	09.4	N 5 00.9	Acamar	315 43.4	S 40 25.8
	01	115	30.5		146	58.5	29.2	265	57.1	35.2	289	59.0	58.4	97	11.8	00.9	Achernar	335 51.2	S 57 23.9
	02	130	33.0		161	58.2	28.2	280	58.2	35.7	305	01.3	58.4	112	14.3	00.9	Acrux	173 47.3	S 62 55.4
	03	145	35.5		176	58.0	27.1	295	59.3	36.2	320	03.6	58.5	127	16.7	00.9	Adhara	255 38.5	S 28 55.6
	04	160	37.9		191	57.7	26.0	311	00.4	36.7	335	05.9	58.5	142	19.1	01.0	Aldebaran	291 27.7	N 16 27.1
	05	175	40.4		206	57.5	24.9	326	01.5	37.1	350	08.2	58.6	157	21.5	01.0			
	06	190	42.9		221	57.2	S 14 23.8	341	02.6	S 10 37.6	5 10.6	S 0 58.6	172	24.0	N 5 01.0	Alioth	166 49.8	N 56 07.3	
	07	205	45.3		236	57.0	22.7	356	03.7	38.1	20	12.9	58.7	187	26.4	01.1	Alkaid	153 25.2	N 49 27.7
	08	220	47.8		251	56.8	21.6	11	04.8	38.6	35	15.2	58.7	202	28.8	01.1	Al Na'ir	28 25.9	S 47 07.0
	09	235	50.3		266	56.5	20.6	26	05.9	39.1	50	17.5	58.8	217	31.2	01.1	Anilam	276 20.1	S 1 13.1
	10	250	52.7		281	56.3	19.5	41	07.0	39.6	65	19.9	58.8	232	33.7	01.2	Alphard	218 28.8	S 8 31.3
	11	265	55.2		296	56.0	18.4	56	08.2	40.1	80	22.2	58.8	247	36.1	01.2			
	12	280	57.6		311	55.8	S 14 17.3	71	09.3	S 10 40.6	95	24.5	S 0 58.9	262	38.5	N 5 01.2	Alphecca	126 39.6	N 26 48.8
	13	296	00.1		326	55.5	16.2	86	10.4	41.1	110	26.8	58.9	277	40.9	01.2	Alpheratz	358 18.4	N 28 55.3
	14	311	02.6		341	55.3	15.1	101	11.5	41.6	125	29.2	59.0	292	43.3	01.3	Altair	62 41.3	N 8 47.0
	15	326	05.0		356	55.1	14.0	116	12.6	42.1	140	31.5	59.0	307	45.8	01.3	Ankaa	353 48.6	S 42 28.7
	16	341	07.5		11	54.8	12.9	131	13.7	42.6	155	33.8	59.1	322	48.2	01.3	Antares	113 07.8	S 26 22.0
	17	356	10.0		26	54.6	11.8	146	14.8	43.1	170	36.1	59.1	337	50.6	01.4			
	18	11	12.4		41	54.3	S 14 10.7	161	15.9	S 10 43.6	185	38.5	S 0 59.2	352	53.0	N 5 01.4	Arcturus	146 26.4	N 19 20.4
	19	26	14.9		56	54.1	09.7	176	17.0	44.0	200	40.8	59.2	7	55.4	01.4	Atria	108 40.5	S 68 58.4
	20	41	17.4		71	53.9	08.6	191	18.1	44.5	215	43.1	59.3	22	57.9	01.5	Avior	234 31.4	S 59 24.3
	21	56	19.8		86	53.6	07.5	206	19.3	45.0	230	45.4	59.3	38	00.3	01.5	Bellatrix	279 07.7	N 6 19.5
	22	71	22.3		101	53.4	06.4	221	20.4	45.5	245	47.8	59.4	53	02.7	01.5	Betelgeuse	271 37.3	N 7 24.3
23	86	24.8		116	53.2	05.3	236	21.5	46.0	260	50.1	59.4	68	05.1	01.5				
THURSDAY	00	101	27.2		131	52.9	S 14 04.2	251	22.6	S 10 46.5	275	52.4	S 0 59.5	83	07.5	N 5 01.6	Canopus	264 10.5	S 52 40.6
	01	116	29.7		146	52.7	03.1	266	23.7	47.0	290	54.7	59.5	98	10.0	01.6	Capella	281 23.6	N 45 58.3
	02	131	32.1		161	52.5	02.0	281	24.8	47.5	305	57.1	59.6	113	12.4	01.6	Deneb	49 54.9	N 45 10.1
	03	146	34.6		176	52.2	14 00.9	296	25.9	48.0	320	59.4	59.6	128	14.8	01.7	Denebola	183 07.7	N 14 44.6
	04	161	37.1		191	52.0	13 59.8	311	27.0	48.5	336	01.7	59.7	143	17.2	01.7	Diphda	349 29.4	S 18 09.5
	05	176	39.5		206	51.8	58.7	326	28.1	49.0	351	04.1	59.7	158	19.6	01.7			
	06	191	42.0		221	51.5	S 13 57.6	341	29.3	S 10 49.4	6 06.4	S 0 59.7	173	22.1	N 5 01.8	Dubhe	194 32.0	N 61 54.9	
	07	206	44.5		236	51.3	56.5	356	30.4	49.9	21	08.7	59.8	188	24.5	01.8	Elath	278 54.7	N 28 35.1
	08	221	46.9		251	51.1	55.4	11	31.5	50.4	36	11.0	59.8	203	26.9	01.8	Eltanin	91 02.3	N 51 29.3
	09	236	49.4		266	50.9	54.3	26	32.6	50.9	51	13.4	59.9	218	29.3	01.9	Enif	34 20.3	N 9 43.9
	10	251	51.9		281	50.6	53.2	41	33.7	51.4	66	15.7	0 59.9	233	31.7	01.9	Fomalhaut	16 01.0	S 29 47.4
	11	266	54.3		296	50.4	52.1	56	34.8	51.9	81	18.0	1 00.0	248	34.1	01.9			
	12	281	56.8		311	50.2	S 13 51.0	71	35.9	S 10 52.4	96	20.4	S 1 00.0	263	36.6	N 5 02.0	Gacrux	172 38.7	S 56 56.1
	13	296	59.3		326	50.0	49.9	86	37.0	52.9	111	22.7	00.1	278	39.0	02.0	Gienah	176 26.9	S 17 22.1
	14	312	01.7		341	49.7	48.8	101	38.2	53.4	126	25.0	00.1	293	41.4	02.0	Hadar	149 36.2	S 60 13.3
	15	327	04.2		356	49.5	47.7	116	39.3	53.8	141	27.4	00.2	308	43.8	02.0	Hamal	328 38.6	N 23 19.2
	16	342	06.6		11	49.3	46.6	131	40.4	54.3	156	29.7	00.2	323	46.2	02.1	Kaus Aust.	84 28.7	S 34 24.2
	17	357	09.1		26	49.1	45.5	146	41.5	54.8	171	32.0	00.2	338	48.6	02.1			
	18	12	11.6		41	48.9	S 13 44.4	161	42.6	S 10 55.3	186	34.4	S 1 00.3	353	51.1	N 5 02.1	Kochab	137 18.7	N 74 16.6
	19	27	14.0		56	48.6	43.3	176	43.7	55.8	201	36.7	00.3	8	53.5	02.2	Markab	14 12.0	N 15 02.3
	20	42	16.5		71	48.4	42.2	191	44.8	56.3	216	39.0	00.4	23	55.9	02.2	Menkar	314 50.0	N 3 58.3
	21	57	19.0		86	48.2	41.1	206	45.9	56.8	231	41.4	00.4	38	58.3	02.2	Menkent	148 47.5	S 36 13.0
	22	72	21.4		101	48.0	40.0	221	47.0	57.3	246	43.7	00.5	54	00.7	02.3	Miaplacidus	221 46.5	S 69 35.1
23	87	23.9		116	47.8	38.8	236	48.2	57.8	261	46.0	00.5	69	03.1	02.3				
FRIDAY	00	102	26.4		131	47.6	S 13 37.7	251	49.3	S 10 58.2	276	48.4	S 1 00.6	84	05.5	N 5 02.3	Mirfak	309 28.3	N 49 45.4
	01	117	28.8		146	47.3	36.6	266	50.4	58.7	291	50.7	00.6	99	08.0	02.4	Nunki	76 40.2	S 26 20.4
	02	132	31.3		161	47.1	35.5	281	51.5	59.2	306	53.0	00.6	114	10.4	02.4	Peacock	54 12.4	S 56 50.4
	03	147	33.8		176	46.9	34.4	296	52.6	10 59.7	321	55.4	00.7	129	12.8	02.4	Pollux	244 08.3	N 28 06.2
	04	162	36.2		191	46.7	33.3	311	53.7	11 00.2	336	57.7	00.7	144	15.2	02.5	Procyon	245 34.5	N 5 18.4
	05	177	38.7		206	46.5	32.2	326	54.8	00.7	352	00.0	00.8	159	17.6	02.5			
	06	192	41.1		221	46.3	S 13 31.1	341	55.9	S 11 01.2	7 02.4	S 1 00.8	174	20.0	N 5 02.5	Rasalhague	96 37.9	N 12 34.7	
	07	207	43.6		236	46.1	30.0	356	57.0	01.6	22	04.7	00.9	189	22.4	02.6	Regulus	208 18.9	N 12 07.2
	08	222	46.1		251	45.9	28.9	11	58.2	02.1	37	07.0	00.9	204	24.9	02.6	Rigel	281 44.0	S 8 14.1
	09	237	48.5		266	45.7	27.7	26	59.3	02.6	52	09.4	00.9	219	27.3	02.6	Rigel Kent.	140 38.2	S 60 42.2
	10	252	51.0		281	45.5	26.6	42	00.4	03.1	67	11.7	01.0	234	29.7	02.7	Sabik	102 51.4	S 15 41.4
	11	267	53.5		296	45.3	25.5	57	01.5	03.6	82	14.0	01.0	249	32.1	02.7			
	12	282	55.9		311	45.0	S 13 24.4	72	02.6	S 11 04.1	97	16.4	S 1 01.1	264	34.5	N 5 02.7	Schedar	350 19.2	N 56 22.4
	13	297	58.4		326	44.8	23.3	87	03.7	04.6	112	18.7	01.1	279	36.9	02.8	Shaula	97 07.9	S 37 05.1
	14	313	00.9		341	44.6	22.2	102	04.8	05.0	127	21.1	01.2	294	39.3	02.8	Sirius	259 03.0	S 16 40.3
	15	328	03.3		356	44.4	21.1	117	05.9	05.5	142	23.4	01.2	309	41.8	02.8	Spica	159 06.7	S 11 00.0
	16	343	05.8		11	44.2	19.9	132	07.1	06.0	157	25.7	01.2	324	44.2	02.9	Suhail	223 16.9	S 43 18.2
	17	358	08.3		26	44.0	18.8	147	08.2	06.5	172	28.1	01.3	339	46.6	02.9			
	18	13	10.7		41	43.8	S 13 17.7	162	09.3	S 11 07.0	187	30.4	S 1 01.3	354	49.0	N 5 02.9	Vega	81 02.2	N 38 45.1
	19	28	13.2		56	43.6	16.6	177	10.4	07.5	202	32.8	01.4	9	51.4	03.0	Zuben'ubi	137 42.9	S 15 54.9
	20</																		

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise									
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.		Naut.	Civil		1	2	3	4						
d	h									^o	^h ^m	^h ^m	^h ^m	^h ^m	^h ^m	^h ^m	^h ^m					
1	00	179	09.0	S 23	02.3	32	32.8	11.0	N 26	30.0	5.4	54.0	N 70	08 04	09 48							
	01	194	08.7		02.1	47	02.8	10.9		26	35.4	5.3	54.0	68	07 49	09 16						
	02	209	08.4		01.9	61	32.7	10.9		26	40.7	5.1	54.0	66	07 37	08 52	10 26					
	03	224	08.1		01.7	76	02.6	10.9		26	45.8	5.1	54.0	64	07 26	08 34	09 49					
	04	239	07.8		01.5	90	32.5	10.8		26	50.9	4.9	54.0	62	07 17	08 18	09 22	11 08		12 13	14 21	
	05	254	07.5		01.3	105	02.3	10.7		26	55.8	4.8	54.0	60	07 09	08 05	09 02	11 59	12 29	13 32	14 59	
	06	269	07.2	S 23	01.1	119	32.0	10.7	N 27	00.6	4.7	54.0	N 58	07 02	07 54	08 45	12 31	13 08	14 07	15 26		
	07	284	06.9		00.9	134	01.7	10.7		27	05.3	4.5	54.0	56	06 56	07 44	08 31	12 55	13 35	14 33	15 47	
	08	299	06.6		00.7	148	31.4	10.6		27	09.8	4.4	54.0	54	06 50	07 35	08 19	13 14	13 56	14 54	16 04	
	09	314	06.3		00.4	163	01.0	10.6		27	14.2	4.3	54.0	52	06 44	07 28	08 08	13 30	14 14	15 11	16 19	
WEDNESDAY	10	329	06.0		00.2	177	30.6	10.5		27	18.5	4.1	54.0	50	06 39	07 20	07 58	13 45	14 29	15 25	16 32	
	11	344	05.8	23	00.0	192	00.1	10.5		27	22.6	4.1	54.0	45	06 28	07 05	07 38	14 13	14 59	15 55	16 58	
	12	359	05.5	S 22	59.8	206	29.6	10.5	N 27	26.7	3.9	54.0	N 40	06 18	06 52	07 22	14 36	15 23	16 18	17 18		
	13	14	05.2		59.6	220	59.1	10.4		27	30.6	3.7	54.0	35	06 09	06 40	07 08	14 54	15 43	16 37	17 36	
	14	29	04.9		59.4	235	28.5	10.3		27	34.3	3.7	54.0	30	06 00	06 30	06 56	15 11	15 59	16 53	17 50	
	15	44	04.6		59.2	249	57.8	10.4		27	38.0	3.5	54.0	20	05 44	06 11	06 35	15 38	16 28	17 21	18 16	
	16	59	04.3		59.0	264	27.2	10.3		27	41.5	3.3	54.0	N 10	05 28	05 54	06 17	16 01	16 52	17 45	18 37	
	17	74	04.0		58.8	278	56.5	10.2		27	44.8	3.3	54.0	0	05 12	05 38	06 00	16 23	17 15	18 07	18 57	
	18	89	03.7	S 22	58.6	293	25.7	10.2	N 27	48.1	3.1	54.0	S 10	04 53	05 20	05 43	16 45	17 38	18 29	19 17		
	19	104	03.4		58.3	307	54.9	10.2		27	51.2	3.0	54.0	20	04 31	05 00	05 25	17 09	18 02	18 52	19 39	
THURSDAY	20	119	03.1		58.1	322	24.1	10.2		27	54.2	2.8	54.0	30	04 03	04 36	05 03	17 37	18 30	19 20	20 03	
	21	134	02.8		57.9	336	53.3	10.1		27	57.0	2.7	54.0	35	03 44	04 21	04 50	17 53	18 47	19 36	20 18	
	22	149	02.5		57.7	351	22.4	10.1		27	59.7	2.6	54.0	40	03 22	04 03	04 36	18 12	19 07	19 55	20 35	
	23	164	02.2		57.5	5	51.5	10.0		28	02.3	2.4	54.0	45	02 52	03 41	04 18	18 36	19 31	20 17	20 55	
	00	179	01.9	S 22	57.3	20	20.5	10.1	N 28	04.7	2.3	54.0	S 50	02 09	03 12	03 56	19 05	20 02	20 46	21 20		
	01	194	01.7		57.1	34	49.6	10.0		28	07.0	2.2	54.0	52	01 43	02 58	03 46	19 20	20 17	21 00	21 32	
	02	209	01.4		56.8	49	18.6	10.0		28	09.2	2.0	54.0	54	01 03	02 40	03 34	19 38	20 35	21 17	21 46	
	03	224	01.1		56.6	63	47.6	9.9		28	11.2	1.9	54.0	56	///	02 19	03 20	19 58	20 57	21 36	22 01	
	04	239	00.8		56.4	78	16.5	10.0		28	13.1	1.8	54.0	58	///	01 51	03 04	20 25	21 24	22 01	22 20	
	05	254	00.5		56.2	92	45.5	9.9		28	14.9	1.6	54.0	S 60	///	01 08	02 44	21 02	22 05	22 33	22 44	
FRIDAY	06	269	00.2	S 22	55.9	107	14.4	9.8	N 28	16.5	1.5	54.0	Lat.		Sun-set		Twilight		Moonset			
	07	283	59.9		55.7	121	43.2	9.9		28	18.0	1.3	54.0	^h ^m		^h ^m		^h ^m		^h ^m		
	08	298	59.6		55.5	136	12.1	9.9		28	19.3	1.2	54.0	^h ^m		^h ^m		^h ^m		^h ^m		
	09	313	59.3		55.3	150	41.0	9.8		28	20.5	1.1	54.0	^h ^m		^h ^m		^h ^m		^h ^m		
	10	328	59.0		55.0	165	09.8	9.8		28	21.6	0.9	54.0	^h ^m		^h ^m		^h ^m		^h ^m		
	11	343	58.7		54.8	179	38.6	9.8		28	22.5	0.8	54.0	N 72	13 29	15 45						
	12	358	58.4	S 22	54.6	194	07.4	9.8	N 28	23.3	0.7	54.0	N 70	14 20	16 04							
	13	13	58.2		54.4	208	36.2	9.8		28	24.0	0.5	54.0	68	14 52	16 19						
	14	28	57.9		54.1	223	05.0	9.7		28	24.5	0.4	54.0	66	13 42	15 16	16 32					
	15	43	57.6		53.9	237	33.7	9.8		28	24.9	0.2	54.0	64	14 20	15 35	16 42					
SATURDAY	16	58	57.3		53.7	252	02.5	9.7		28	25.1	0.1	54.0	62	14 46	15 50	16 51	09 07			11 37	11 15
	17	73	57.0		53.4	266	31.2	9.8		28	25.2	0.0	54.0	60	15 06	16 03	16 59	08 16	09 33	10 18	10 37	
	18	88	56.7	S 22	53.2	281	00.0	9.7	N 28	25.2	0.2	54.0	N 58	15 23	16 14	17 06	07 45	08 54	09 42	10 10		
	19	103	56.4		53.0	295	28.7	9.8		28	25.0	0.3	54.0	56	15 37	16 24	17 13	07 21	08 27	09 16	09 48	
	20	118	56.1		52.7	309	57.5	9.7		28	24.7	0.4	54.0	54	15 50	16 33	17 19	07 02	08 06	08 56	09 31	
	21	133	55.8		52.5	324	26.2	9.7		28	24.3	0.6	54.0	52	16 00	16 41	17 24	06 46	07 48	08 38	09 16	
	22	148	55.6		52.3	338	54.9	9.7		28	23.7	0.7	54.0	50	16 10	16 48	17 29	06 32	07 33	08 24	09 03	
	23	163	55.3		52.0	353	23.6	9.8		28	23.0	0.9	54.1	45	16 30	17 04	17 41	06 04	07 03	07 54	08 36	
	00	178	55.0	S 22	51.8	7	52.4	9.7	N 28	22.1	1.0	54.1	N 40	16 46	17 17	17 51	05 42	06 39	07 30	08 14		
	SUNDAY	01	193	54.7		51.6	22	21.1	9.7		28	21.1	1.2	54.1	35	17 00	17 28	18 00	05 24	06 20	07 11	07 56
02		208	54.4		51.3	36	49.8	9.8		28	19.9	1.3	54.1	30	17 12	17 38	18 08	05 08	06 03	06 55	07 41	
03		223	54.1		51.1	51	18.6	9.7		28	18.6	1.4	54.1	20	17 33	17 57	18 24	04 41	05 35	06 27	07 15	
04		238	53.8		50.8	65	47.3	9.8		28	17.2	1.6	54.1	N 10	17 51	18 14	18 40	04 19	05 11	06 02	06 52	
05		253	53.5		50.6	80	16.1	9.7		28	15.6	1.7	54.1	0	18 08	18 30	18 56	03 57	04 48	05 40	06 31	
06		268	53.3	S 22	50.4	94	44.8	9.8	N 28	13.9	1.8	54.1	S 10	18 25	18 48	19 15	03 36	04 26	05 17	06 10		
07		283	53.0		50.1	109	13.6	9.8		28	12.1	2.0	54.1	20	18 43	19 08	19 37	03 14	04 01	04 53	05 47	
08		298	52.7		49.9	123	42.4	9.8		28	10.1	2.1	54.1	30	19 05	19 32	20 05	02 47	03 33	04 25	05 21	
09		313	52.4		49.6	138	11.2	9.8		28	08.0	2.3	54.1	35	19 18	19 47	20 23	02 32	03 17	04 08	05 05	
10		328	52.1		49.4	152	40.0	9.8		28	05.7	2.3	54.1	40	19 32	20 05	20 46	02 14	02 57	03 48	04 46	
MONDAY	11	343	51.8		49.1	167	08.8	9.9		28	03.4	2.6	54.1	45	19 50	20 27	21 15	01 52	02 34	03 25	04 24	
	12	358	51.5	S 22	48.9	181	37.7	9.8	N 28	00.8	2.6	54.1	S 50	20 12	20 55	21 59	01 25	02 04	02 54	03 56		
	13	13	51.2		48.7	196	06.5	9.9		27	58.2	2.9	54.1	52	20 22	21 10	22 24	01 12	01 49	02 39	03 42	
	14	28	51.0		48.4	210	35.4	10.0		27	55.3	2.9	54.1	54	20 34	21 27	23 03	00 57	01 31	02 21	03 25	
	15	43	50.7		48.2	225	04.3	10.0		27	52.4	3.1	54.1	56	20 47	21 48	///	00 39	01 10	01 59	03 06	
	16	58	50.4		47.9	239	33.3	9.9		27	49.3	3.2	54.2	58	21 03	22 15	///	00 17	00 44	01 31	02 42	
	17	73	50.1		47.7	254																

G.M.T.		ARIES		VENUS -3.9		MARS +1.4		JUPITER -1.7		SATURN +0.7		STARS		
		G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d	h	°	'	°	'	°	'	°	'	°	'		°	'
SATURDAY	4 00	103 25.5	131 42.7 S 13	11.0	252 16.0 S 11	09.9	277 44.5 S 1	01.6	85 03.5 N 5	03.1	Acamar	315 43.4	S 40 25.8	
	01	118 28.0	146 42.5	09.9	267 17.1	10.4	292 46.8	01.6	100 05.9	03.2	Achernar	335 51.2	S 57 23.9	
	02	133 30.4	161 42.3	08.8	282 18.2	10.9	307 49.1	01.7	115 08.3	03.2	Acruz	173 47.2	S 62 55.4	
	03	148 32.9	176 42.1	07.6	297 19.3	11.3	322 51.5	01.7	130 10.7	03.2	Adhara	255 38.5	S 28 55.6	
	04	163 35.4	191 41.9	06.5	312 20.4	11.8	337 53.8	01.7	145 13.1	03.3	Aldebaran	291 27.7	N 16 27.1	
	05	178 37.8	206 41.7	05.4	327 21.5	12.3	352 56.2	01.8	160 15.5	03.3				
	06	193 40.3	221 41.5 S 13	04.3	342 22.6 S 11	12.8	7 58.5 S 1	01.8	175 17.9 N 5	03.4	Alioth	166 49.8	N 56 07.3	
	07	208 42.7	236 41.3	03.1	357 23.7	13.3	23 00.9	01.9	190 20.3	03.4	Alkaid	153 25.2	N 49 27.7	
	08	223 45.2	251 41.1	02.0	12 24.9	13.8	38 03.2	01.9	205 22.7	03.4	Al Na'ir	28 25.9	S 47 07.0	
	09	238 47.7	266 40.9	13 00.9	27 26.0	14.2	53 05.5	01.9	220 25.2	03.5	Anilam	276 20.1	S 1 13.1	
	10	253 50.1	281 40.7	12 59.8	42 27.1	14.7	68 07.9	02.0	235 27.6	03.5	Alphard	218 28.8	S 8 31.3	
	11	268 52.6	296 40.6	58.7	57 28.2	15.2	83 10.2	02.0	250 30.0	03.5				
	12	283 55.1	311 40.4 S 12	57.5	72 29.3 S 11	15.7	98 12.6 S 1	02.1	265 32.4 N 5	03.6	Alphecca	126 39.6	N 26 48.8	
	13	298 57.5	326 40.2	56.4	87 30.4	16.2	113 14.9	02.1	280 34.8	03.6	Alpheratz	358 18.5	N 28 55.3	
	14	314 00.0	341 40.0	55.3	102 31.5	16.7	128 17.3	02.1	295 37.2	03.6	Altair	62 41.3	N 8 47.0	
	15	329 02.5	356 39.8	54.1	117 32.6	17.1	143 19.6	02.2	310 39.6	03.7	Ankaa	353 48.6	S 42 28.7	
	16	344 04.9	11 39.6	53.0	132 33.8	17.6	158 22.0	02.2	325 42.0	03.7	Antares	113 07.8	S 26 22.0	
	17	359 07.4	26 39.5	51.9	147 34.9	18.1	173 24.3	02.2	340 44.4	03.7				
	18	14 09.9	41 39.3 S 12	50.8	162 36.0 S 11	18.6	188 26.6 S 1	02.3	355 46.8 N 5	03.8	Arcturus	146 26.4	N 19 20.4	
	19	29 12.3	56 39.1	49.6	177 37.1	19.1	203 29.0	02.3	10 49.2	03.8	Atria	108 40.4	S 68 58.4	
	20	44 14.8	71 38.9	48.5	192 38.2	19.5	218 31.3	02.4	25 51.6	03.8	Avior	234 31.3	S 59 24.3	
	21	59 17.2	86 38.7	47.4	207 39.3	20.0	233 33.7	02.4	40 54.1	03.9	Bellatrix	279 07.7	N 6 19.5	
	22	74 19.7	101 38.6	46.2	222 40.4	20.5	248 36.0	02.4	55 56.5	03.9	Betelgeuse	271 37.3	N 7 24.3	
	23	89 22.2	116 38.4	45.1	237 41.6	21.0	263 38.4	02.5	70 58.9	04.0				
SUNDAY	5 00	104 24.6	131 38.2 S 12	44.0	252 42.7 S 11	21.5	278 40.7 S 1	02.5	86 01.3 N 5	04.0	Canopus	264 10.5	S 52 40.6	
	01	119 27.1	146 38.0	42.9	267 43.8	21.9	293 43.1	02.6	101 03.7	04.0	Capella	281 23.6	N 45 58.3	
	02	134 29.6	161 37.9	41.7	282 44.9	22.4	308 45.4	02.6	116 06.1	04.1	Deneb	49 54.9	N 45 10.1	
	03	149 32.0	176 37.7	40.6	297 46.0	22.9	323 47.8	02.6	131 08.5	04.1	Denebola	183 07.7	N 14 44.6	
	04	164 34.5	191 37.5	39.5	312 47.1	23.4	338 50.1	02.7	146 10.9	04.1	Diphda	349 29.4	S 18 09.5	
	05	179 37.0	206 37.3	38.3	327 48.2	23.9	353 52.5	02.7	161 13.3	04.2				
	06	194 39.4	221 37.2 S 12	37.2	342 49.4 S 11	24.3	8 54.8 S 1	02.7	176 15.7 N 5	04.2	Dubhe	194 32.0	N 61 54.9	
	07	209 41.9	236 37.0	36.1	357 50.5	24.8	23 57.2	02.8	191 18.1	04.2	Elath	278 54.7	N 28 35.1	
	08	224 44.4	251 36.8	34.9	12 51.6	25.3	38 59.5	02.8	206 20.5	04.3	Eltanin	91 02.2	N 51 29.3	
	09	239 46.8	266 36.7	33.8	27 52.7	25.8	54 01.9	02.9	221 22.9	04.3	Enif	34 20.3	N 9 43.9	
	10	254 49.3	281 36.5	32.7	42 53.8	26.3	69 04.2	02.9	236 25.3	04.3	Fomalhaut	16 01.0	S 29 47.4	
	11	269 51.7	296 36.3	31.5	57 54.9	26.7	84 06.6	02.9	251 27.7	04.4				
	12	284 54.2	311 36.2 S 12	30.4	72 56.0 S 11	27.2	99 08.9 S 1	03.0	266 30.1 N 5	04.4	Gacrux	172 38.6	S 56 56.1	
	13	299 56.7	326 36.0	29.2	87 57.1	27.7	114 11.3	03.0	281 32.5	04.5	Gienah	176 26.9	S 17 22.1	
	14	314 59.1	341 35.8	28.1	102 58.3	28.2	129 13.6	03.0	296 34.9	04.5	Hadar	149 36.1	S 60 13.3	
	15	330 01.6	356 35.7	27.0	117 59.4	28.7	144 16.0	03.1	311 37.4	04.5	Hamal	328 38.6	N 23 19.2	
	16	345 04.1	11 35.5	25.8	133 00.5	29.1	159 18.3	03.1	326 39.8	04.6	Kaus Aust.	84 28.7	S 34 24.2	
	17	0 06.5	26 35.3	24.7	148 01.6	29.6	174 20.7	03.1	341 42.2	04.6				
	18	15 09.0	41 35.2 S 12	23.6	163 02.7 S 11	30.1	189 23.0 S 1	03.2	356 44.6 N 5	04.6	Kochab	137 18.6	N 74 16.5	
	19	30 11.5	56 35.0	22.4	178 03.8	30.6	204 25.4	03.2	11 47.0	04.7	Markab	14 12.0	N 15 02.3	
	20	45 13.9	71 34.9	21.3	193 04.9	31.0	219 27.7	03.3	26 49.4	04.7	Menkar	314 50.0	N 3 58.2	
	21	60 16.4	86 34.7	20.1	208 06.1	31.5	234 30.1	03.3	41 51.8	04.8	Menkent	148 47.5	S 36 13.0	
	22	75 18.8	101 34.5	19.0	223 07.2	32.0	249 32.5	03.3	56 54.2	04.8	Miaplacidus	221 46.5	S 69 35.1	
	23	90 21.3	116 34.4	17.8	238 08.3	32.5	264 34.8	03.4	71 56.6	04.8				
MONDAY	6 00	105 23.8	131 34.2 S 12	16.7	253 09.4 S 11	32.9	279 37.2 S 1	03.4	86 59.0 N 5	04.9	Mirfak	309 28.3	N 49 45.4	
	01	120 26.2	146 34.1	15.6	268 10.5	33.4	294 39.5	03.4	102 01.4	04.9	Nunki	76 40.2	S 26 20.4	
	02	135 28.7	161 33.9	14.4	283 11.6	33.9	309 41.9	03.5	117 03.8	04.9	Peacock	54 12.4	S 56 50.4	
	03	150 31.2	176 33.8	13.3	298 12.7	34.4	324 44.2	03.5	132 06.2	05.0	Pollux	244 08.3	N 28 06.2	
	04	165 33.6	191 33.6	12.1	313 13.9	34.8	339 46.6	03.5	147 08.6	05.0	Procyon	245 34.5	N 5 18.4	
	05	180 36.1	206 33.5	11.0	328 15.0	35.3	354 48.9	03.6	162 11.0	05.1				
	06	195 38.6	221 33.3 S 12	09.8	343 16.1 S 11	35.8	9 51.3 S 1	03.6	177 13.4 N 5	05.1	Rasalhague	96 37.9	N 12 34.7	
	07	210 41.0	236 33.1	08.7	358 17.2	36.3	24 53.6	03.6	192 15.8	05.1	Regulus	208 18.9	N 12 07.2	
	08	225 43.5	251 33.0	07.6	13 18.3	36.8	39 56.0	03.7	207 18.2	05.2	Rigel	281 44.0	S 8 14.1	
	09	240 45.9	266 32.8	06.4	28 19.4	37.2	54 58.4	03.7	222 20.6	05.2	Rigel Kent.	140 38.1	S 60 42.2	
	10	255 48.4	281 32.7	05.3	43 20.5	37.7	70 00.7	03.7	237 23.0	05.2	Sabik	102 51.4	S 15 41.4	
	11	270 50.9	296 32.5	04.1	58 21.7	38.2	85 03.1	03.8	252 25.4	05.3				
	12	285 53.3	311 32.4 S 12	03.0	73 22.8 S 11	38.7	100 05.4 S 1	03.8	267 27.8 N 5	05.3	Schedar	350 19.2	N 56 22.3	
	13	300 55.8	326 32.3	01.8	88 23.9	39.1	115 07.8	03.8	282 30.2	05.4	Shaula	97 07.9	S 37 05.1	
	14	315 58.3	341 32.1	12 00.7	103 25.0	39.6	130 10.2	03.9	297 32.6	05.4	Sirius	259 03.0	S 16 40.3	
	15	331 00.7	356 32.0	11 59.5	118 26.1	40.1	145 12.5	03.9	312 35.0	05.4	Spica	159 06.7	S 11 00.0	
	16	346 03.2	11 31.8	58.4	133 27.2	40.6	160 14.9	03.9	327 37.4	05.5	Suhail	223 16.9	S 43 18.2	
	17	1 05.7	26 31.7	57.2	148 28.4	41.0	175 17.2	04.0	342 39.8	05.5				
	18	16 08.1	41 31.5 S 11	56.1	163 29.5 S 11	41.5	190 19.6 S 1	04.0	357 42.2 N 5	05.6	Vega	81 02.1	N 38 45.0	
	19	31 10.6	56 31.4	54.9	178 30.6	42.0	205 22.0	04.0	12 44.6	05.6	Zuben'ubi	137 42.8	S 15 54.9	
	20	46 13.1	71 31.2	53.8	193 31.7	42.4	220 24.3	04.1	27 47.0	05.6				
	21	61 15.5	86 31.1	52.6	208 32.8	42.9	235 26.7	04.1	42 49.4	05.7				
	22	76 18.0	101 31.0	51.5	223 33.9	43.4	250 29.0	04.1	57 51.8	05.7	Venus	27 13.6	15 14	
	23	91 20.4	116 30.8	50.3	238 35.0	43.9	265 31.4	04.2	72 54.2	05.7	Mars	148 18.1	7 09	
												Jupiter	174 16.1	5 24
												Saturn	341 36.7	18 13
Mer. Pass. 16 59.6														
v -0.2 d 1.1														
v 1.1 d 0.5														
v 2.4 d 0.0														

G.M.T.	SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise			
	G.H.A.	Dec.	G.H.A.	φ	Dec.	d	H.P.		Naut.	Civil		4	5	6	7
d h	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	°	h m	h m	h m	h m	h m	h m	h m
4	00	178 48.1 S 22 45.9	355 25.6 10.2	N 27 19.8	4.3	54.2	N 72	08 20	10 30					15 51	18 32
	01	193 47.8 45.6	354 34.6 10.2	27 15.5 4.4	54.2	N 70	08 02	09 43					16 41	18 52	
	02	208 47.5 45.4	24 24.0 10.2	27 11.1 4.6	54.2	66	07 35	08 50	10 20			14 49	17 13	19 08	
	03	223 47.3 45.1	36 53.2 10.3	27 06.5 4.7	54.2	64	07 25	08 32	09 45			15 40	17 36	19 20	
	04	238 47.0 44.9	53 22.5 10.3	27 01.8 4.8	54.2	62	07 16	08 17	09 20	14 21	16 11	17 54	19 31		
	05	253 46.7 44.6	67 51.8 10.4	26 57.0 4.9	54.3	60	07 08	08 04	09 00	14 59	16 34	18 09	19 40		
	06	268 46.4 S 22 44.3	82 21.2 10.4	N 26 52.1	5.1	54.3	N 58	07 01	07 53	08 44	15 26	16 53	18 21	19 48	
	07	283 46.1 44.1	96 50.6 10.4	26 47.0 5.2	54.3	56	06 55	07 43	08 30	15 47	17 08	18 32	19 55		
	08	298 45.8 43.8	111 29.0 10.5	26 41.8 5.4	54.3	54	06 49	07 35	08 18	16 04	17 22	18 42	20 01		
	09	313 45.6 43.6	125 49.5 10.5	26 36.4 5.5	54.3	52	06 44	07 27	08 07	16 19	17 33	18 50	20 07		
5	10	328 45.3 43.3	140 19.0 10.5	26 30.9 5.6	54.3	50	06 39	07 20	07 58	16 32	17 44	18 58	20 12		
	11	343 45.0 43.0	154 48.5 10.6	26 25.3 5.7	54.3	45	06 28	07 05	07 38	16 58	18 05	19 14	20 23		
	12	358 44.7 S 22 42.8	169 18.1 10.7	N 26 19.6	5.8	54.3	N 40	06 18	06 52	07 22	17 18	18 22	19 27	20 31	
	13	13 44.4 42.5	183 47.8 10.7	26 13.8 6.0	54.3	35	06 09	06 41	07 08	17 36	18 37	19 38	20 39		
	14	28 44.1 42.2	198 17.5 10.7	26 07.8 6.1	54.3	30	06 01	06 30	06 57	17 50	18 49	19 48	20 46		
	15	43 43.9 42.0	212 47.2 10.8	26 01.7 6.3	54.4	20	05 45	06 12	06 36	18 16	19 10	20 04	20 57		
	16	58 43.6 41.7	227 17.0 10.8	25 55.4 6.5	54.4	N 10	05 30	05 56	06 18	18 37	19 29	20 19	21 07		
	17	73 43.3 41.4	241 46.8 10.9	25 49.1 6.5	54.4	0	05 13	05 39	06 02	18 57	19 46	20 32	21 16		
	18	88 43.0 S 22 41.2	256 16.7 10.9	N 25 42.6	6.6	54.4	S 10	04 55	05 22	05 45	19 17	20 03	20 46	21 26	
	19	103 42.7 40.9	270 46.6 10.9	25 36.0 6.7	54.4	20	04 33	05 02	05 26	19 39	20 21	21 00	21 36		
6	20	118 42.5 40.6	285 16.5 11.1	25 29.3 6.9	54.4	30	04 05	04 38	05 05	20 03	20 42	21 16	21 47		
	21	133 42.2 40.3	299 46.6 11.0	25 22.4 7.0	54.4	35	03 47	04 23	04 53	20 18	20 54	21 25	21 53		
	22	148 41.9 40.1	314 16.6 11.1	25 15.4 7.1	54.4	40	03 25	04 06	04 38	20 35	21 08	21 36	22 01		
	23	163 41.6 39.8	328 46.7 11.2	25 08.3 7.2	54.4	45	02 56	03 44	04 21	20 55	21 24	21 49	22 09		
	00	178 41.3 S 22 39.5	343 16.9 11.2	N 25 01.1	7.3	54.5	S 50	02 13	03 16	04 00	21 20	21 45	22 04	22 19	
	01	193 41.1 39.3	357 47.1 11.3	24 53.8 7.5	54.5	52	01 49	03 02	03 49	21 32	21 54	22 11	22 24		
	02	208 40.8 39.0	12 17.4 11.3	24 46.3 7.5	54.5	54	01 12	02 45	03 38	21 46	22 05	22 19	22 29		
	03	223 40.5 38.7	26 47.7 11.4	24 38.8 7.7	54.5	56	///	02 25	03 24	22 01	22 17	22 27	22 35		
	04	238 40.2 38.4	41 18.1 11.4	24 31.1 7.8	54.5	58	///	01 58	03 08	22 20	22 31	22 37	22 41		
	05	253 39.9 38.1	55 48.5 11.5	24 23.3 7.9	54.5	S 60	///	01 18	02 49	22 44	22 47	22 48	22 48		
7	06	268 39.7 S 22 37.9	70 19.0 11.5	N 24 15.4	8.1	54.5	Lat.	Sun-set	Twilight		Moonset				
	07	283 39.4 37.6	84 49.5 11.6	24 07.3 8.1	54.5	50	h m	h m	h m	h m	h m	h m	h m	h m	
	08	298 39.1 37.3	99 20.1 11.7	23 59.2 8.3	54.6	N 72		13 41	15 52				12 30		
	09	313 38.8 37.0	113 50.8 11.7	23 50.9 8.4	54.6	N 70		14 28	16 10			13 09	12 01		
	10	328 38.5 36.7	128 21.5 11.7	23 42.5 8.4	54.6	68	12 41	14 59	16 24			12 17	11 40		
	11	343 38.3 36.5	142 52.2 11.8	23 34.1 8.6	54.6	66	13 51	15 22	16 36		12 31	11 45	11 23		
	12	358 38.0 S 22 36.2	157 23.0 11.9	N 23 25.5	8.7	54.6	64	14 26	15 40	16 46		11 39	11 21	11 08	
	13	13 37.7 35.9	171 53.9 11.9	23 16.8 8.9	54.6	62	14 52	15 55	16 55	11 15	11 07	11 02	10 57		
	14	28 37.4 35.6	186 24.8 12.0	23 07.9 9.0	54.6	60	15 11	16 07	17 03	10 37	10 43	10 46	10 46		
	15	43 37.2 35.3	200 55.8 12.0	22 59.0 9.0	54.7	N 58	15 28	16 18	17 10	10 10	10 24	10 32	10 37		
8	16	58 36.9 35.0	215 26.8 12.1	22 50.0 9.2	54.7	56	15 41	16 28	17 16	09 48	10 08	10 21	10 29		
	17	73 36.6 34.7	229 57.9 12.2	22 40.8 9.2	54.7	54	15 53	16 36	17 22	09 31	09 54	10 11	10 22		
	18	88 36.3 S 22 34.5	244 29.1 12.2	N 22 31.6	9.4	54.7	52	16 04	16 44	17 27	09 16	09 42	10 02	10 16	
	19	103 36.0 34.2	259 00.3 12.2	22 22.2 9.4	54.7	50	16 13	16 51	17 32	09 03	09 32	09 53	10 10		
	20	118 35.8 33.9	273 31.5 12.3	22 12.8 9.6	54.7	45	16 33	17 06	17 43	08 36	09 09	09 36	09 58		
	21	133 35.5 33.6	288 02.8 12.4	22 03.2 9.6	54.7	N 40	16 49	17 19	17 53	08 14	08 51	09 21	09 48		
	22	148 35.2 33.3	302 34.2 12.4	21 53.6 9.8	54.7	35	17 02	17 30	18 02	07 56	08 36	09 09	09 39		
	23	163 34.9 33.0	317 05.6 12.5	21 43.8 9.9	54.8	30	17 14	17 40	18 10	07 41	08 22	08 58	09 31		
	00	178 34.7 S 22 32.7	331 37.1 12.6	N 21 33.9	9.9	54.8	20	17 35	17 59	18 26	07 15	07 59	08 40	09 17	
	01	193 34.4 32.4	346 08.7 12.6	21 24.0 10.1	54.8	N 10	17 52	18 15	18 41	06 52	07 40	08 24	09 05		
9	02	208 34.1 32.1	0 40.3 12.6	21 13.9 10.2	54.8	0	18 09	18 32	18 57	06 31	07 21	08 08	08 54		
	03	223 33.8 31.8	15 11.9 12.7	21 03.7 10.2	54.8	S 10	18 26	18 49	19 16	06 10	07 02	07 53	08 42		
	04	238 33.6 31.5	29 43.6 12.8	20 53.5 10.4	54.8	20	18 44	19 09	19 38	05 47	06 42	07 37	08 30		
	05	253 33.3 31.2	44 15.4 12.8	20 43.1 10.4	54.9	30	19 05	19 33	20 05	05 21	06 19	07 17	08 16		
	06	268 33.0 S 22 30.9	58 47.2 12.9	N 20 32.7	10.6	54.9	35	19 18	19 47	20 23	05 05	06 05	07 06	08 07	
	07	283 32.7 30.6	73 19.1 12.9	20 22.1 10.6	54.9	40	19 32	20 05	20 45	04 46	05 49	06 53	07 58		
	08	298 32.5 30.3	87 51.0 13.0	20 11.5 10.8	54.9	45	19 49	20 26	21 14	04 24	05 30	06 38	07 47		
	09	313 32.2 30.0	102 23.0 13.0	20 00.7 10.8	54.9	S 50	20 11	20 54	21 56	03 56	05 05	06 19	07 33		
	10	328 31.9 29.7	116 55.0 13.1	19 49.9 10.9	54.9	52	20 21	21 08	22 21	03 42	04 54	06 10	07 27		
	11	343 31.6 29.4	131 27.1 13.2	19 39.0 11.0	54.9	54	20 33	21 25	22 56	03 25	04 40	06 00	07 20		
10	12	358 31.4 S 22 29.1	145 59.3 13.2	N 19 28.0	11.1	55.0	56	20 46	21 45	///	03 06	04 25	05 48	07 12	
	13	13 31.1 28.8	160 31.5 13.2	19 16.9 11.2	55.0	58	21 01	22 11	///	02 42	04 06	05 35	07 03		
	14	28 30.8 28.5	175 03.7 13.3	19 05.7 11.3	55.0	S 60	21 20	22 50	///	02 10	03 44	05 19	06 53		
	15	43 30.5 28.2	189 36.0 13.4	18 54.4 11.4	55.0	Day	SUN		Mer. Pass.		MOON				
	16	58 30.3 27.9	204 08.4 13.4	18 43.0 11.4	55.0	Eqn. of Time	Mer. Pass.	Mer. Upper	Pass. Lower	Age	Phase				
	17	73 30.0 27.6	218 40.8 13.5	18 31.6 11.6	55.0	00 ^h	12 ^h								
	18	88 29.7 S 22 27.3	233 13.2 13.5	N 18 20.0	11.6	55.1	m s	m s	h m	h m	h m	d			
	19	103 29.5 27.0	247 45.7 13.6	18 08.4 11.7	55.1	4	04 47	05 0							

G.M.T.	ARIES			VENUS -3-0			MARS -1-4			JUPITER -1-7			SATURN -0-6			STARS		
	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	d	m	s	d	m	s	d	m	s	d	m	s	d	m	s	d	m	s
7 00	106 22-9	131 30-7	S 11 44-0	253 30-2	S 11 44-3	280 33-6	S 1 04-2	57 20-6	N 5 05-6	Acamar	253 30-2	S 11 44-3	57 20-6	N 5 05-6	Acamar	253 30-2	S 11 44-3	
01	101 25-4	146 30-5	48-0	253 37-3	44-6	280 36-1	04-3	101 25-4	05-6	Achernar	101 25-4	05-6	101 25-4	05-6	Achernar	101 25-4	05-6	
02	136 27-8	161 30-4	46-4	253 38-4	45-3	281 36-5	04-3	113 21-4	05-6	Acnua	113 21-4	05-6	113 21-4	05-6	Acnua	113 21-4	05-6	
03	151 30-3	176 30-3	45-7	256 30-5	45-6	282 36-6	04-3	133 21-6	05-6	Achernar	133 21-6	05-6	133 21-6	05-6	Achernar	133 21-6	05-6	
04	166 32-8	191 30-1	44-6	256 40-6	46-0	280 39-2	04-3	148 20-5	05-6	Achernar	148 20-5	05-6	148 20-5	05-6	Achernar	148 20-5	05-6	
05	181 35-2	206 30-0	43-4	258 42-7	46-7	282 40-6	04-3	163 20-6	05-6	Achernar	163 20-6	05-6	163 20-6	05-6	Achernar	163 20-6	05-6	
06	196 37-7	221 29-6	S 11 42-3	243 42-9	S 11 47-2	10 47-4	S 1 04-4	178 11-6	N 5 06-0	Aldebaran	178 11-6	N 5 06-0	178 11-6	N 5 06-0	Aldebaran	178 11-6	N 5 06-0	
07	211 40-1	236 29-7	41-1	258 44-0	47-6	282 43-7	04-4	193 11-4	06-1	Alkaid	193 11-4	06-1	193 11-4	06-1	Alkaid	193 11-4	06-1	
08	226 42-6	251 29-6	39-9	258 45-1	48-1	282 45-7	04-4	208 11-6	06-1	Al Na'ir	208 11-6	06-1	208 11-6	06-1	Al Na'ir	208 11-6	06-1	
09	241 45-1	266 29-5	38-6	26 46-0	48-6	283 46-0	04-5	223 11-6	06-1	Alnair	223 11-6	06-1	223 11-6	06-1	Alnair	223 11-6	06-1	
10	256 47-6	281 29-3	37-6	43 47-3	49-1	283 47-4	04-5	238 11-6	06-1	Alnair	238 11-6	06-1	238 11-6	06-1	Alnair	238 11-6	06-1	
11	271 50-0	296 29-2	36-5	58 48-4	49-5	85 59-8	04-5	253 23-0	06-2	Alnair	253 23-0	06-2	253 23-0	06-2	Alnair	253 23-0	06-2	
12	286 52-5	311 29-1	S 11 35-3	73 49-6	S 11 50-0	101 02-1	S 1 04-6	268 24-4	N 5 06-3	Alphecca	268 24-4	N 5 06-3	268 24-4	N 5 06-3	Alphecca	268 24-4	N 5 06-3	
13	301 54-9	326 29-0	34-2	88 50-7	50-6	116 04-6	04-6	283 24-6	06-3	Alphecca	283 24-6	06-3	283 24-6	06-3	Alphecca	283 24-6	06-3	
14	316 57-4	341 28-6	33-0	103 51-8	50-6	121 04-9	04-6	298 24-6	06-3	Alnair	298 24-6	06-3	298 24-6	06-3	Alnair	298 24-6	06-3	
15	331 59-9	356 28-7	31-4	118 52-9	51-4	126 05-2	04-7	313 24-6	06-4	Alnair	313 24-6	06-4	313 24-6	06-4	Alnair	313 24-6	06-4	
16	347 02-3	371 28-6	30-7	133 54-0	51-4	131 05-6	04-7	328 24-6	06-4	Alnair	328 24-6	06-4	328 24-6	06-4	Alnair	328 24-6	06-4	
17	2 04-8	386 28-4	29-5	148 55-1	52-4	136 06-0	04-7	343 24-6	06-4	Alnair	343 24-6	06-4	343 24-6	06-4	Alnair	343 24-6	06-4	
18	17 07-3	401 28-3	S 11 26-4	163 56-2	S 11 52-6	141 06-3	S 1 04-7	358 24-7	N 5 06-7	Antares	358 24-7	N 5 06-7	358 24-7	N 5 06-7	Antares	358 24-7	N 5 06-7	
19	32 09-7	416 28-2	25-0	178 57-3	53-6	146 06-7	04-8	373 24-7	06-5	Antares	373 24-7	06-5	373 24-7	06-5	Antares	373 24-7	06-5	
20	47 12-2	431 28-1	23-7	193 58-4	54-6	151 07-1	04-8	388 24-7	06-5	Antares	388 24-7	06-5	388 24-7	06-5	Antares	388 24-7	06-5	
21	62 14-7	446 28-0	22-4	208 59-5	55-6	156 07-5	04-8	403 24-7	06-5	Antares	403 24-7	06-5	403 24-7	06-5	Antares	403 24-7	06-5	
22	77 17-1	461 27-6	21-7	223 60-6	56-6	161 07-9	04-8	418 24-7	06-5	Antares	418 24-7	06-5	418 24-7	06-5	Antares	418 24-7	06-5	
23	92 19-6	476 27-5	20-6	238 61-7	57-6	166 08-3	04-8	433 24-7	06-5	Antares	433 24-7	06-5	433 24-7	06-5	Antares	433 24-7	06-5	
8 00	107 22-1	131 27-6	S 11 21-4	254 03-0	S 11 53-6	281 30-5	S 1 04-6	58 24-1	N 5 06-6	Canopus	58 24-1	N 5 06-6	58 24-1	N 5 06-6	Canopus	58 24-1	N 5 06-6	
01	122 24-5	146 27-5	20-3	254 04-1	54-6	281 31-6	04-6	103 24-1	06-6	Capella	103 24-1	06-6	103 24-1	06-6	Capella	103 24-1	06-6	
02	137 27-0	161 27-4	19-1	254 05-2	55-6	281 32-7	04-6	118 24-1	06-6	Capella	118 24-1	06-6	118 24-1	06-6	Capella	118 24-1	06-6	
03	152 29-4	176 27-2	17-9	254 06-3	56-6	281 33-8	04-6	133 24-1	06-6	Capella	133 24-1	06-6	133 24-1	06-6	Capella	133 24-1	06-6	
04	167 31-8	191 27-1	16-8	254 07-4	57-6	281 34-9	04-6	148 24-1	06-6	Capella	148 24-1	06-6	148 24-1	06-6	Capella	148 24-1	06-6	
05	182 34-2	206 27-0	15-6	254 08-5	58-6	281 36-0	04-6	163 24-1	06-6	Capella	163 24-1	06-6	163 24-1	06-6	Capella	163 24-1	06-6	
06	197 36-6	221 26-9	S 11 14-4	254 09-6	S 11 59-6	11 44-7	S 1 04-6	178 24-1	N 5 06-6	Dubhe	178 24-1	N 5 06-6	178 24-1	N 5 06-6	Dubhe	178 24-1	N 5 06-6	
07	212 39-0	236 26-6	13-3	254 10-7	60-6	26 47-1	04-6	193 24-1	06-6	Elkhan	193 24-1	06-6	193 24-1	06-6	Elkhan	193 24-1	06-6	
08	227 41-4	251 26-5	12-1	254 11-8	61-6	41 49-6	04-6	208 24-1	06-6	Elkhan	208 24-1	06-6	208 24-1	06-6	Elkhan	208 24-1	06-6	
09	242 43-8	266 26-5	10-9	254 12-9	62-6	56 52-1	04-6	223 24-1	06-6	Elkhan	223 24-1	06-6	223 24-1	06-6	Elkhan	223 24-1	06-6	
10	257 46-2	281 26-4	09-8	254 14-0	63-6	71 54-6	04-6	238 24-1	06-6	Elkhan	238 24-1	06-6	238 24-1	06-6	Elkhan	238 24-1	06-6	
11	272 48-6	296 26-3	08-6	254 15-1	64-6	86 56-6	04-6	253 24-1	06-6	Elkhan	253 24-1	06-6	253 24-1	06-6	Elkhan	253 24-1	06-6	
12	287 51-0	311 26-2	S 11 07-4	254 16-2	S 12 01-3	101 59-0	S 1 04-6	268 24-1	N 5 06-6	Gacrux	268 24-1	N 5 06-6	268 24-1	N 5 06-6	Gacrux	268 24-1	N 5 06-6	
13	302 53-4	326 26-1	06-3	254 17-3	02-3	117 01-3	04-6	283 24-1	06-6	Gacrux	283 24-1	06-6	283 24-1	06-6	Gacrux	283 24-1	06-6	
14	317 55-8	341 26-0	05-1	254 18-4	03-3	132 03-7	04-6	298 24-1	06-6	Gacrux	298 24-1	06-6	298 24-1	06-6	Gacrux	298 24-1	06-6	
15	332 58-2	356 25-9	03-9	254 19-5	04-3	147 06-1	04-6	313 24-1	06-6	Gacrux	313 24-1	06-6	313 24-1	06-6	Gacrux	313 24-1	06-6	
16	348 00-5	371 25-8	02-8	254 20-6	05-3	162 08-5	04-6	328 24-1	06-6	Gacrux	328 24-1	06-6	328 24-1	06-6	Gacrux	328 24-1	06-6	
17	3 03-9	386 25-7	01-6	254 21-7	06-3	177 10-9	04-6	343 24-1	06-6	Gacrux	343 24-1	06-6	343 24-1	06-6	Gacrux	343 24-1	06-6	
18	18 06-4	401 25-6	S 11 00-4	254 22-8	S 12 04-1	192 13-2	S 1 04-6	358 24-1	N 5 06-6	Kochab	358 24-1	N 5 06-6	358 24-1	N 5 06-6	Kochab	358 24-1	N 5 06-6	
19	33 08-9	416 25-5	10 59-3	254 23-9	05-1	207 15-6	04-6	373 24-1	06-6	Kochab	373 24-1	06-6	373 24-1	06-6	Kochab	373 24-1	06-6	
20	48 11-3	431 25-4	09-1	254 25-0	06-1	222 18-0	04-6	388 24-1	06-6	Kochab	388 24-1	06-6	388 24-1	06-6	Kochab	388 24-1	06-6	
21	63 13-8	446 25-3	07-9	254 26-1	07-1	237 20-4	04-6	403 24-1	06-6	Kochab	403 24-1	06-6	403 24-1	06-6	Kochab	403 24-1	06-6	
22	78 16-3	461 25-2	06-8	254 27-2	08-1	252 22-8	04-6	418 24-1	06-6	Kochab	418 24-1	06-6	418 24-1	06-6	Kochab	418 24-1	06-6	
23	93 18-7	476 25-1	05-6	254 28-3	09-1	267 25-2	04-6	433 24-1	06-6	Kochab	433 24-1	06-6	433 24-1	06-6	Kochab	433 24-1	06-6	
9 00	108 21-2	131 25-0	S 10 53-4	254 29-4	S 12 06-9	282 27-6	S 1 04-6	448 24-1	N 5 06-6	Mikha	448 24-1	N 5 06-6	448 24-1	N 5 06-6	Mikha	448 24-1	N 5 06-6	
01	123 23-7	146 24-9	52-3	254 30-5	07-9	297 29-6	04-6	463 24-1	06-6	Mikha	463 24-1	06-6	463 24-1	06-6	Mikha	463 24-1	06-6	
02	138 26-1	161 24-8	51-1	254 31-6	08-9	312 32-0	04-6	478 24-1	06-6	Mikha	478 24-1	06-6	478 24-1	06-6	Mikha	478 24-1	06-6	
03	153 28-6	176 24-7	49-9	254 32-7	09-9	327 34-4	04-6	493 24-1	06-6	Mikha	493 24-1	06-6	493 24-1	06-6	Mikha	493 24-1	06-6	
04	168 31-1	191 24-6	48-7	314 34-2	08-7	342 36-8	04-6	508 24-1	06-6	Mikha	508 24-1	06-6	508 24-1	06-6	Mikha	508 24-1	06-6	
05	183 33-5	206 24-5	47-6	329 35-4	09-2	357 39-3	04-6	523 24-1	06-6	Mikha	523 24-1	06-6	523 24-1	06-6	Mikha	523 24-1	06-6	
06	198 36-0	221 24-4	S 10 46-4	344 36-5	S 12 09-7	372 41-7	S 1 04-7	538 24-1	N 5 06-6	Rasalhague	538 24-1	N 5 06-6	538 24-1	N 5 06-6	Rasalhague	538 24-1	N 5 06-6	
07	213 38-4	236 24-3	45-2	359 37-6	10-1	387 44-1	04-7	553 24-1	06-6	Rasalhague	553 24-1	06-6	553 24-1	06-6	Rasalhague	553 24-1	06-6	
08	228 40-9	251 24-2	44-0	374 38-7	10-6	402 46-5	04-7	568 24-1	06-6	Rasalhague	568 24-1	06-6	568 24-1	06-6	Rasalhague	568 24-1	06-6	
09	243 43-4	266 24-1	42-9	389 39-8	11-1	417 48-9	04-7	583 24-1	06-6	Rasalhague	583 24-1	06-6	583 24-1	06-6	Rasalhague	583 24-1	06-6	
10	258 45-8	281 24-0	41-7	404 41-0	11-5	432 51-2	04-7	598 24-1	06-6	Rasalhague	598 24-1	06-6	598 24-1	06-6	Rasalhague	598 24-1	06-6	
11	273 48-3	296 23-9	40-5	419 42-1	12-0	447 53-6	04-7	613 24-										

G.M.T.	SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise				
	G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.		Naut.	Civil		7	8	9	10	
d h	°	'	°	'	°	'	'	°	h m	h m	h m	h m	h m	h m	h m	h m
TUESDAY	00	178 28.1 S 22 25.5	320 29.0 13.8	N 17	09.0 12.1	55.2		N 72	08 15	10 20	■	18 06	20 28	22 37	24 50	
	01	193 27.8 25.1	335 01.8 13.9	16 56.9 12.2	55.2		N 70	07 58	09 37	■	18 32	20 38	22 38	24 40		
	02	208 27.6 24.8	349 34.7 13.9	16 44.7 12.2	55.2		68	07 44	09 08	11 10	18 52	20 47	22 38	24 32		
	03	223 27.3 . . 24.5	4 07.6 13.9	16 32.5 12.4	55.2		66	07 33	08 46	10 13	19 08	20 54	22 38	24 25		
	04	238 27.0 24.2	18 40.5 14.0	16 20.1 12.4	55.2		64	07 23	08 29	09 40	19 20	21 00	22 39	24 20		
	05	253 26.8 23.9	33 13.5 14.1	16 07.7 12.5	55.3		62	07 14	08 14	09 16	19 31	21 05	22 39	24 15		
	06	268 26.5 S 22 23.6	47 46.6 14.0	N 15	55.2 12.6	55.3		60	07 07	08 02	08 57	19 40	21 10	22 39	24 11	
	07	283 26.2 23.3	62 19.6 14.2	15 42.6 12.6	55.3		N 58	07 00	07 51	08 41	19 48	21 14	22 39	24 07		
	08	298 25.9 22.9	76 52.8 14.1	15 30.0 12.7	55.3		56	06 54	07 42	08 28	19 55	21 17	22 40	24 04		
	09	313 25.7 . . 22.6	91 25.9 14.2	15 17.3 12.8	55.3		54	06 48	07 34	08 16	20 01	21 20	22 40	24 01		
	10	328 25.4 22.3	105 59.1 14.3	15 04.5 12.9	55.4		52	06 43	07 26	08 06	20 07	21 23	22 40	23 59		
	11	343 25.1 22.0	120 32.4 14.3	14 51.6 12.9	55.4		50	06 38	07 19	07 57	20 12	21 26	22 40	23 56		
	12	358 24.9 S 22 21.7	135 05.7 14.3	N 14	38.7 13.0	55.4		45	06 28	07 04	07 38	20 23	21 31	22 40	23 51	
	13	13 24.6 21.3	149 39.0 14.3	14 25.7 13.1	55.4		N 40	06 18	06 52	07 22	20 31	21 36	22 41	23 47		
	14	28 24.3 21.0	164 12.3 14.4	14 12.6 13.1	55.4		35	06 09	06 41	07 08	20 39	21 40	22 41	23 44		
	15	43 24.1 . . 20.7	178 45.7 14.5	13 59.5 13.2	55.5		30	06 01	06 31	06 57	20 46	21 43	22 41	23 40		
	16	58 23.8 20.4	193 19.2 14.5	13 46.3 13.3	55.5		20	05 46	06 13	06 37	20 57	21 49	22 42	23 35		
	17	73 23.5 20.0	207 52.7 14.5	13 33.0 13.3	55.5		N 10	05 31	05 57	06 19	21 07	21 55	22 42	23 30		
	18	88 23.3 S 22 19.7	222 26.2 14.5	N 13	19.7 13.4	55.5		0	05 15	05 41	06 03	21 16	21 59	22 42	23 26	
	19	103 23.0 19.4	236 59.7 14.6	13 06.3 13.5	55.5		S 10	04 57	05 24	05 46	21 26	22 04	22 43	23 22		
	20	118 22.7 19.1	251 33.3 14.6	12 52.8 13.5	55.6		20	04 35	05 04	05 28	21 36	22 10	22 43	23 17		
	21	133 22.5 . . 18.7	266 06.9 14.6	12 39.3 13.6	55.6		30	04 08	04 40	05 08	21 47	22 15	22 43	23 12		
	22	148 22.2 18.4	280 40.5 14.7	12 25.7 13.6	55.6		35	03 50	04 26	04 55	21 53	22 19	22 44	23 09		
	23	163 21.9 18.1	295 14.2 14.7	12 12.1 13.7	55.6		40	03 28	04 09	04 41	22 01	22 23	22 44	23 06		
							45	03 00	03 48	04 24	22 09	22 27	22 44	23 02		
WEDNESDAY	00	178 21.7 S 22 17.8	309 47.9 14.8	N 11	58.4 13.8	55.6		S 50	02 19	03 20	04 03	22 19	22 32	22 45	22 57	
	01	193 21.4 17.4	324 21.7 14.7	11 44.6 13.8	55.7		52	01 55	03 06	03 53	22 24	22 35	22 45	22 55		
	02	208 21.1 17.1	338 55.4 14.8	11 30.8 13.9	55.7		54	01 22	02 50	03 42	22 29	22 37	22 45	22 53		
	03	223 20.9 . . 16.8	353 29.2 14.8	11 16.9 13.9	55.7		56	///	02 30	03 29	22 35	22 40	22 45	22 51		
	04	238 20.6 16.4	8 03.0 14.9	11 03.0 14.0	55.7		58	///	02 05	03 13	22 41	22 43	22 46	22 48		
	05	253 20.3 16.1	22 36.9 14.8	10 49.0 14.0	55.8		S 60	///	01 28	02 55	22 48	22 47	22 46	22 45		
	06	268 20.1 S 22 15.8	37 10.7 14.9	N 10	35.0 14.1	55.8										
	07	283 19.8 15.4	51 44.6 14.9	10 20.9 14.1	55.8											
	08	298 19.6 15.1	66 18.5 15.0	10 06.8 14.2	55.8											
	09	313 19.3 . . 14.8	80 52.5 14.9	9 52.6 14.3	55.8											
	10	328 19.0 14.4	95 26.4 15.0	9 38.3 14.3	55.9											
	11	343 18.8 14.1	110 00.4 15.0	9 24.0 14.3	55.9											
	12	358 18.5 S 22 13.7	124 34.4 15.0	N 9	09.7 14.4	55.9		N 72	■	13 54	15 59	12 30	11 40	11 03	10 29	
	13	13 18.2 13.4	139 08.4 15.0	8 55.3 14.5	55.9		N 70	■	14 37	16 16	12 01	11 26	10 58	10 32		
	14	28 18.0 13.1	153 42.4 15.0	8 40.8 14.4	56.0		68	13 04	15 06	16 30	11 40	11 15	10 55	10 35		
	15	43 17.7 . . 12.7	168 16.4 15.1	8 26.4 14.6	56.0		66	14 01	15 28	16 41	11 23	11 06	10 52	10 38		
	16	58 17.4 12.4	182 50.5 15.1	8 11.8 14.5	56.0		64	14 34	15 45	16 51	11 08	10 58	10 49	10 40		
	17	73 17.2 12.0	197 24.6 15.0	7 57.3 14.7	56.0		62	14 58	16 00	17 00	10 57	10 52	10 47	10 42		
	18	88 16.9 S 22 11.7	211 58.6 15.1	N 7	42.6 14.6	56.0		60	15 17	16 12	17 07	10 46	10 46	10 45	10 43	
	19	103 16.7 11.4	226 32.7 15.1	7 28.0 14.7	56.1		N 58	15 32	16 22	17 14	10 37	10 41	10 43	10 45		
	20	118 16.4 11.0	241 06.8 15.1	7 13.3 14.8	56.1		56	15 46	16 32	17 20	10 29	10 36	10 41	10 46		
	21	133 16.1 . . 10.7	255 40.9 15.1	6 58.5 14.8	56.1		54	15 57	16 40	17 25	10 22	10 32	10 40	10 47		
	22	148 15.9 10.3	270 15.0 15.2	6 43.7 14.8	56.1		52	16 08	16 48	17 31	10 16	10 28	10 38	10 48		
	23	163 15.6 10.0	284 49.2 15.1	6 28.9 14.8	56.2		50	16 17	16 54	17 35	10 10	10 24	10 37	10 49		
							45	16 36	17 09	17 46	09 58	10 17	10 34	10 52		
THURSDAY	00	178 15.4 S 22 09.6	299 23.3 15.1	N 6	14.1 14.9	56.2		N 40	16 52	17 22	17 55	09 48	10 11	10 32	10 53	
	01	193 15.1 09.3	313 57.4 15.1	5 59.2 15.0	56.2		35	17 05	17 33	18 04	09 39	10 05	10 30	10 55		
	02	208 14.8 08.9	328 31.5 15.2	5 44.2 15.0	56.2		30	17 17	17 43	18 12	09 31	10 00	10 28	10 56		
	03	223 14.6 . . 08.6	343 05.7 15.1	5 29.2 15.0	56.3		20	17 36	18 00	18 28	09 17	09 52	10 25	10 59		
	04	238 14.3 08.2	357 39.8 15.1	5 14.2 15.0	56.3		N 10	17 54	18 17	18 43	09 05	09 44	10 22	11 01		
	05	253 14.1 07.9	12 13.9 15.2	4 59.2 15.1	56.3		0	18 10	18 33	18 59	08 54	09 37	10 20	11 03		
	06	268 13.8 S 22 07.5	26 48.1 15.1	N 4	44.1 15.1	56.3		S 10	18 27	18 50	19 17	08 42	09 30	10 17	11 05	
	07	283 13.5 07.2	41 22.2 15.1	4 29.0 15.1	56.4		20	18 45	19 09	19 38	08 30	09 22	10 14	11 07		
	08	298 13.3 06.8	55 56.3 15.1	4 13.9 15.2	56.4		30	19 06	19 33	20 05	08 16	09 13	10 11	11 09		
	09	313 13.0 . . 06.5	70 30.4 15.1	3 58.7 15.2	56.4		35	19 18	19 47	20 23	08 07	09 08	10 09	11 11		
	10	328 12.8 06.1	85 04.5 15.1	3 43.5 15.2	56.5		40	19 32	20 04	20 45	07 58	09 02	10 07	11 12		
	11	343 12.5 05.8	99 38.6 15.1	3 28.3 15.3	56.5		45	19 49	20 25	21 13	07 47	08 56	10 04	11 14		
	12	358 12.2 S 22 05.4	114 12.7 15.1	N 3	13.0 15.3	56.5		S 50	20 10	20 53	21 53	07 33	08 47	10 01	11 16	
	13	13 12.0 05.0	128 46.8 15.1	2 57.7 15.3	56.5		52	20 20	21 06	22 17	07 27	08 43	10 00	11 17		
	14	28 11.7 04.7	143 20.9 15.0	2 42.4 15.3	56.6		54	20 31	21 22	22 49	07 20	08 39	09 58	11 18		
	15	43 11.5 . . 04.3	157 54.9 15.1	2 27.1 15.4	56.6		56	20 44	21 42	///	07 12	08 34	09 57	11 20		
	16	58 11.2 04.0	172 29.0 15.0	2 11.7 15.3	56.6		58	20 59	22 07	///	07 03	08 29	09 55	11 21		
	17	73 11.0 03.6	187 03.0 15.0	1 56.4 15.4	56.6		S 60	21 17	22 42	///	06 53	08 23	09 52	11 22		
	18	88 10.7 S 22 03.2	201 37.0 15.0	N 1	41.0 15.5	56.7										
	19	103 10.4 02.9	216 11.0 14.9	1 25.5 15.4	56.7											
	20	118 10.2 02.5	230 44.9 15.0	1 10.1 15.5	56.7											
	21	133 09.9 . . 02.1	245 18.9 14.9	0 54.6 15.5												

G.M.T.		ARIES		VENUS -3-9		MARS +1-4		JUPITER -1-7		SATURN +0-8		STARS		
d	h	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
10	00	109 20-3	131 22-8	S 10 25-2	254 56-6	S 12 18-0	283 24-6	S 1 06-1	90 48-8	N 5 08-8	Acamar	315 43-4	S 40 25-8	
	01	124 22-8	146 22-7	24-0	269 57-7	18-5	298 26-9	06-2	105 51-2	08-8	Achernar	335 51-3	S 57 23-9	
	02	139 25-3	161 22-6	22-9	284 58-9	18-9	313 29-3	06-2	120 53-6	08-9	Acrux	173 47-1	S 62 55-4	
	03	154 27-7	176 22-5	21-7	300 00-0	19-4	328 31-7	06-2	135 56-0	08-9	Adhara	255 38-5	S 28 55-7	
	04	169 30-2	191 22-4	20-5	315 01-1	19-8	343 34-1	06-2	150 58-4	09-0	Aldebaran	291 27-7	N 16 27-1	
	05	184 32-6	206 22-4	19-3	330 02-2	20-3	358 36-5	06-2	166 00-8	09-0				
	06	199 35-1	221 22-3	S 10 18-1	345 03-3	S 12 20-8	13 38-9	S 1 06-3	181 03-1	N 5 09-1	Alioth	166 49-7	N 56 07-3	
	07	214 37-6	236 22-2	17-0	0 04-4	21-2	28 41-3	06-3	196 05-5	09-1	Alkaid	153 25-1	N 49 27-7	
	08	229 40-0	251 22-1	15-8	15 05-6	21-7	43 43-6	06-3	211 07-9	09-1	Al Na'ir	28 25-9	S 47 07-0	
	09	244 42-5	266 22-1	14-6	30 06-7	22-1	58 46-0	06-3	226 10-3	09-2	Alnilam	276 20-1	S 1 13-1	
FRI	10	259 45-0	281 22-0	13-4	45 07-8	22-6	73 48-4	06-4	241 12-7	09-2	Alphard	218 28-8	S 8 31-3	
	11	274 47-4	296 21-9	12-2	60 08-9	23-1	88 50-8	06-4	256 15-1	09-3				
	12	289 49-9	311 21-8	S 10 11-0	75 10-0	S 12 23-5	103 53-2	S 1 06-4	271 17-4	N 5 09-3	Alphecca	126 39-6	N 26 48-8	
	13	304 52-4	326 21-8	09-9	90 11-2	24-0	118 55-6	06-4	286 19-8	09-4	Alpheratz	358 18-5	N 28 55-3	
	14	319 54-8	341 21-7	08-7	105 12-3	24-4	133 58-0	06-4	301 22-2	09-4	Altair	62 41-3	N 8 46-9	
	15	334 57-3	356 21-6	07-5	120 13-4	24-9	149 00-3	06-5	316 24-6	09-5	Ankaa	353 48-6	S 42 28-7	
	16	349 59-8	11 21-5	06-3	135 14-5	25-4	164 02-7	06-5	331 27-0	09-5	Antares	113 07-8	S 26 22-0	
	17	5 02-2	26 21-5	05-1	150 15-6	25-8	179 05-1	06-5	346 29-4	09-6				
	18	20 04-7	41 21-4	S 10 03-9	165 16-8	S 12 26-3	194 07-5	S 1 06-5	1 31-7	N 5 09-6	Arcturus	146 26-3	N 19 20-4	
	19	35 07-1	56 21-3	02-7	180 17-9	26-7	209 09-9	06-5	16 34-1	09-6	Atria	108 40-3	S 68 58-3	
SAT	20	50 09-6	71 21-3	01-6	195 19-0	27-2	224 12-3	06-6	31 36-5	09-7	Avior	234 31-3	S 59 24-4	
	21	65 12-1	86 21-2	10 00-4	210 20-1	27-7	239 14-7	06-6	46 38-9	09-7	Bellatrix	279 07-7	N 6 19-5	
	22	80 14-5	101 21-1	9 59-2	225 21-2	28-1	254 17-1	06-6	61 41-3	09-8	Betelgeuse	271 37-3	N 7 24-3	
	23	95 17-0	116 21-1	58-0	240 22-4	28-6	269 19-5	06-6	76 43-7	09-8				
	00	110 19-5	131 21-0	S 9 56-8	255 23-5	S 12 29-0	284 21-8	S 1 06-6	91 46-0	N 5 09-9	Canopus	264 10-5	S 52 40-6	
	01	125 21-9	146 20-9	55-6	270 24-6	29-5	299 24-2	06-7	106 48-4	09-9	Capella	281 23-6	N 45 58-3	
	02	140 24-4	161 20-9	54-4	285 25-7	30-0	314 26-6	06-7	121 50-8	10-0	Deneb	49 54-9	N 45 10-1	
	03	155 26-9	176 20-8	53-2	300 26-9	30-4	329 29-0	06-7	136 53-2	10-0	Denebola	183 07-6	N 14 44-6	
	04	170 29-3	191 20-8	52-1	315 28-0	30-9	344 31-4	06-7	151 55-6	10-1	Diphda	349 29-5	S 18 09-5	
	05	185 31-8	206 20-7	50-9	330 29-1	31-3	359 33-8	06-7	166 58-0	10-1				
SUNDAY	06	200 34-3	221 20-6	S 9 49-7	345 30-2	S 12 31-8	14 36-2	S 1 06-8	182 00-3	N 5 10-1	Dubhe	194 31-9	N 61 54-9	
	07	215 36-7	236 20-6	48-5	0 31-3	32-2	29 38-6	06-8	197 02-7	10-2	Elmath	278 54-7	N 28 35-1	
	08	230 39-2	251 20-5	47-3	15 32-5	32-7	44 41-0	06-8	212 05-1	10-2	Eltanin	91 02-2	N 51 29-2	
	09	245 41-6	266 20-5	46-1	30 33-6	33-2	59 43-4	06-8	227 07-5	10-3	Enif	34 20-3	N 9 43-8	
	10	260 44-1	281 20-4	44-9	45 34-7	33-6	74 45-8	06-8	242 09-9	10-3	Fomalhaut	16 01-0	S 29 47-4	
	11	275 46-6	296 20-4	43-7	60 35-8	34-1	89 48-1	06-9	257 12-2	10-4				
	12	290 49-0	311 20-3	S 9 42-5	75 36-9	S 12 34-5	104 50-5	S 1 06-9	272 14-6	N 5 10-4	Gacrux	172 38-6	S 56 56-2	
	13	305 51-5	326 20-2	41-3	90 38-1	35-0	119 52-9	06-9	287 17-0	10-5	Gienah	176 26-8	S 17 22-2	
	14	320 54-0	341 20-2	40-2	105 39-2	35-4	134 55-3	06-9	302 19-4	10-5	Hadar	149 36-0	S 60 13-3	
	15	335 56-4	356 20-1	39-0	120 40-3	35-9	149 57-7	06-9	317 21-8	10-6	Hamal	328 38-6	N 23 19-2	
12	16	350 58-9	11 20-1	37-8	135 41-4	36-3	165 00-1	06-9	332 24-1	10-6	Kaus Aust.	84 28-6	S 34 24-2	
	17	6 01-4	26 20-0	36-6	150 42-5	36-8	180 02-5	07-0	347 26-5	10-7				
	18	21 03-8	41 20-0	S 9 35-4	165 43-7	S 12 37-3	195 04-9	S 1 07-0	2 28-9	N 5 10-7	Kochab	137 18-5	N 74 16-5	
	19	36 06-3	56 19-9	34-2	180 44-8	37-7	210 07-3	07-0	17 31-3	10-8	Markab	14 12-0	N 15 02-3	
	20	51 08-8	71 19-9	33-0	195 45-9	38-2	225 09-7	07-0	32 33-6	10-8	Menkar	314 50-0	N 3 58-2	
	21	66 11-2	86 19-8	31-8	210 47-0	38-6	240 12-1	07-0	47 36-0	10-9	Merkenk	148 47-4	S 36 13-0	
	22	81 13-7	101 19-8	30-6	225 48-2	39-1	255 14-5	07-0	62 38-4	10-9	Miaplacidus	221 46-4	S 69 35-1	
	23	96 16-1	116 19-7	29-4	240 49-3	39-5	270 16-9	07-1	77 40-8	10-9				
	00	111 18-6	131 19-7	S 9 28-2	255 50-4	S 12 40-0	285 19-3	S 1 07-1	92 43-2	N 5 11-0	Mirfak	309 28-3	N 49 45-4	
	01	126 21-1	146 19-7	27-0	270 51-5	40-4	300 21-7	07-1	107 45-5	11-0	Nunki	76 40-2	S 26 20-4	
02	141 23-5	161 19-6	25-8	285 52-6	40-9	315 24-1	07-1	122 47-9	11-1	Peacock	54 12-4	S 56 50-4		
03	156 26-0	176 19-6	24-6	300 53-8	41-3	330 26-5	07-1	137 50-3	11-1	Pollux	244 08-3	N 28 06-2		
04	171 28-5	191 19-5	23-4	315 54-9	41-8	345 28-9	07-1	152 52-7	11-2	Procyon	245 34-4	N 5 18-4		
05	186 30-9	206 19-5	22-2	330 56-0	42-3	0 31-3	07-2	167 55-0	11-2					
SAT	06	201 33-4	221 19-4	S 9 21-0	345 57-1	S 12 42-7	15 33-7	S 1 07-2	182 57-4	N 5 11-3	Rasalhague	96 37-9	N 12 34-6	
	07	216 35-9	236 19-4	19-8	0 58-3	43-2	30 36-1	07-2	197 59-8	11-3	Regulus	208 18-9	N 12 07-1	
	08	231 38-3	251 19-4	18-6	15 59-4	43-6	45 38-5	07-2	213 02-2	11-4	Rigel	281 44-0	S 8 14-1	
	09	246 40-8	266 19-3	17-4	31 00-5	44-1	60 40-9	07-2	228 04-6	11-4	Rigel Kent.	140 38-0	S 60 42-2	
	10	261 43-2	281 19-3	16-2	46 01-6	44-5	75 43-3	07-2	243 06-9	11-5	Sabik	102 51-3	S 15 41-4	
	11	276 45-7	296 19-3	15-1	61 02-7	45-0	90 45-7	07-2	258 09-3	11-5				
	12	291 48-2	311 19-2	S 9 13-9	76 03-9	S 12 45-4	105 48-1	S 1 07-3	273 11-7	N 5 11-6	Schedar	350 19-3	N 56 22-3	
	13	306 50-6	326 19-2	12-7	91 05-0	45-9	120 50-5	07-3	288 14-1	11-6	Shaula	97 07-9	S 37 05-1	
	14	321 53-1	341 19-1	11-5	106 06-1	46-3	135 52-9	07-3	303 16-4	11-7	Sirius	259 03-0	S 16 40-3	
	15	336 55-6	356 19-1	10-3	121 07-2	46-8	150 55-3	07-3	318 18-8	11-7	Spica	159 06-7	S 11 00-0	
12	16	351 58-0	11 19-1	09-1	136 08-4	47-2	165 57-7	07-3	333 21-2	11-8	Suhail	223 16-9	S 43 18-2	
	17	7 00-5	26 19-0	07-9	151 09-5	47-7	181 00-1	07-3	348 23-6	11-8				
	18	22 03-0	41 19-0	S 9 06-7	166 10-6	S 12 48-1	196 02-5	S 1 07-3	3 25-9	N 5 11-9	Vega	81 02-1	N 38 45-0	
	19	37 05-4	56 19-0	05-5	181 11-7	48-6	211 04-9	07-4	18 28-3	11-9	Zuben'ubi	137 42-8	S 15 54-9	
	20	52 07-9	71 19-0	04-3	196 12-9	49-0	226 07-3	07-4	33 30-7	11-9				
	21	67 10-4	86 18-9	03-1	211 14-0	49-5	241 09-7	07-4	48 33-1	12-0				
	22	82 12-8	101 18-9	01-9	226 15-1	49-9	256 12-1	07-4	63 35-4	12-0	Venus	21 01-5	15 15	
	23	97 15-3	116 18-9	00-7	241 16-2	50-4	271 14-5	07-4	78 37-8	12-1	Mars	145 04-0	6 58	
	Mer. Pass. 16 36-0		v -0-1	d 1-2	v 1-1	d 0-5	v 2-4	d 0-0	v 2-4	d 0-0	Jupiter	174 02-3	5 02	
											Saturn	341 26-5	17 50	

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise							
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	10	11	12	13			
d	h	°	'	°	'	°	'	°	'	h	m	h	m	h	m	h	m	h	m
10	00	178	09.2	S 22	01.1	289	00.6	14.8	N	0 08.1	15.5	56.8	N 70	07 54	09 29	24 40	00 40	02 56	06 21
	01	193	08.9		00.7	303	34.4	14.9	S	0 07.4	15.5	56.9	68	07 40	09 02	24 32	00 32	02 36	05 10
	02	208	08.7		00.3	318	08.3	14.7		0 22.9	15.6	56.9	66	07 29	08 42	24 25	00 25	02 21	04 34
	03	223	08.4	22	00.0	332	42.0	14.8		0 38.5	15.6	56.9	64	07 20	08 25	24 20	00 20	02 08	04 09
	04	238	08.2	21	59.6	347	15.8	14.7		0 54.1	15.6	57.0	62	07 12	08 11	24 15	00 15	01 57	03 49
	05	253	07.9		59.2	1 49.5	14.7		1 09.7	15.5	57.0	60	07 05	07 59	08 54	24 11	00 11	01 48	03 33
	06	268	07.6	S 21	58.8	16 23.2	14.7	S	1 25.2	15.6	57.0	N 58	06 58	07 49	08 38	24 07	00 07	01 40	03 20
	07	283	07.4		58.5	30 56.9	14.6		1 40.8	15.7	57.0	56	06 52	07 40	08 26	24 04	00 04	01 33	03 08
	08	298	07.1		58.1	45 30.5	14.6		1 56.5	15.6	57.1	54	06 47	07 32	08 14	24 01	00 01	01 27	02 58
	09	313	06.9		57.7	60 04.1	14.6		2 12.1	15.6	57.1	52	06 42	07 25	08 04	23 59	25 21	01 21	02 49
11	10	328	06.6		57.4	74 37.7	14.5		2 27.7	15.6	57.1	50	06 37	07 18	07 55	23 56	25 16	01 16	02 41
	11	343	06.4		57.0	89 11.2	14.4		2 43.3	15.7	57.2	45	06 27	07 04	07 37	23 51	25 06	01 06	02 24
	D 12	358	06.1	S 21	56.6	103 44.6	14.5	S	2 59.0	15.6	57.2	N 40	06 18	06 51	07 21	23 47	24 57	00 57	02 10
	A 13	13	05.9		56.2	118 18.1	14.3		3 14.6	15.6	57.2	35	06 09	06 41	07 08	23 44	24 49	00 49	01 59
	Y 14	28	05.6		55.9	132 51.4	14.4		3 30.2	15.7	57.3	30	06 02	06 31	06 57	23 40	24 43	00 43	01 49
	15	43	05.4		55.5	147 24.8	14.2		3 45.9	15.6	57.3	20	05 47	06 14	06 37	23 35	24 31	00 31	01 31
	16	58	05.1		55.1	161 58.0	14.3		4 01.5	15.7	57.3	N 10	05 32	05 58	06 20	23 30	24 21	00 21	01 17
	17	73	04.9		54.7	176 31.3	14.2		4 17.2	15.6	57.3	0	05 16	05 42	06 04	23 26	24 12	00 12	01 03
	18	88	04.6	S 21	54.3	191 04.5	14.1	S	4 32.8	15.6	57.4	S 10	04 58	05 25	05 48	23 22	24 03	00 03	00 49
	19	103	04.4		54.0	205 37.6	14.1		4 48.4	15.7	57.4	20	04 37	05 06	05 30	23 17	23 54	24 34	00 34
12	20	118	04.1		53.6	220 10.7	14.0		5 04.1	15.6	57.4	30	04 10	04 43	05 10	23 12	23 43	24 18	00 18
	21	133	03.9		53.2	234 43.7	14.0		5 19.7	15.6	57.5	35	03 53	04 29	04 58	23 09	23 37	24 08	00 08
	22	148	03.6		52.8	249 16.7	13.9		5 35.3	15.6	57.5	40	03 32	04 12	04 44	23 06	23 30	23 58	24 32
	23	163	03.4		52.4	263 49.6	13.9		5 50.9	15.6	57.5	45	03 04	03 51	04 28	23 02	23 21	23 45	24 15
	00	178	03.1	S 21	52.1	278 22.5	13.8	S	6 06.5	15.6	57.6	S 50	02 25	03 25	04 07	22 57	23 12	23 30	23 54
	01	193	02.9		51.7	292 55.3	13.7		6 22.1	15.6	57.6	52	02 02	03 11	03 57	22 55	23 07	23 22	23 44
	02	208	02.6		51.3	307 28.0	13.7		6 37.7	15.5	57.6	54	01 32	02 56	03 46	22 53	23 02	23 15	23 32
	03	223	02.4		50.9	322 00.7	13.6		6 53.2	15.6	57.7	56	00 29	02 37	03 34	22 51	22 57	23 06	23 19
	04	238	02.1		50.5	336 33.3	13.5		7 08.8	15.5	57.7	58	///	02 13	03 19	22 48	22 51	22 56	23 05
	05	253	01.9		50.1	351 05.8	13.5		7 24.3	15.5	57.7	S 60	///	01 40	03 02	22 45	22 44	22 45	22 47
13	06	268	01.6	S 21	49.7	5 38.3	13.4	S	7 39.8	15.5	57.8								
	07	283	01.4		49.3	20 10.7	13.3		7 55.3	15.5	57.8								
	08	298	01.1		49.0	34 43.0	13.3		8 10.8	15.5	57.8								
	A 09	313	00.9		48.6	49 15.3	13.2		8 26.3	15.4	57.8								
	T 10	328	00.6		48.2	63 47.5	13.1		8 41.7	15.4	57.9								
	U 11	343	00.4		47.8	78 19.6	13.0		8 57.1	15.4	57.9								
	R 12	358	00.1	S 21	47.4	92 51.6	13.0	S	9 12.5	15.4	57.9								
	D 13	12	59.9		47.0	107 23.6	12.8		9 27.9	15.3	58.0								
	Y 14	27	59.7		46.6	121 55.4	12.8		9 43.2	15.4	58.0								
	15	42	59.4		46.2	136 27.2	12.7		9 58.6	15.2	58.0	N 70	13 23	15 14	16 36	10 32	10 04	09 25	
14	16	57	59.2		45.8	150 58.9	12.7		10 13.8	15.3	58.1	68	14 11	15 35	16 47	10 38	10 23	10 05	09 37
	17	72	58.9		45.4	165 30.6	12.5		10 29.1	15.2	58.1	66	14 12	15 51	16 56	10 40	10 30	10 19	10 04
	18	87	58.7	S 21	45.0	180 02.1	12.5	S	10 44.3	15.2	58.1	64	14 05	16 05	17 05	10 42	10 37	10 31	10 25
	19	102	58.4		44.6	194 33.6	12.3		10 59.5	15.1	58.2	62	15 05	16 05	17 05	10 42	10 37	10 31	10 25
	20	117	58.2		44.2	209 04.9	12.3		11 14.6	15.2	58.2	60	15 23	16 17	17 12	10 43	10 42	10 42	10 42
	21	132	57.9		43.8	223 36.2	12.2		11 29.8	15.0	58.2	N 58	15 38	16 27	17 18	10 45	10 47	10 51	10 57
	22	147	57.7		43.4	238 07.4	12.1		11 44.8	15.1	58.3	56	15 51	16 36	17 24	10 46	10 52	10 59	11 09
	23	162	57.5		43.0	252 38.5	12.0		11 59.9	15.0	58.3	54	16 02	16 44	17 29	10 47	10 56	11 06	11 20
	00	177	57.2	S 21	42.6	267 09.5	11.9	S	12 14.9	14.9	58.3	52	16 12	16 51	17 34	10 48	10 59	11 12	11 30
	15	01	192	57.0		42.2	281 40.4	11.8		12 29.8	14.9	58.4	50	16 21	16 58	17 39	10 49	11 03	11 18
02		207	56.7		41.8	296 11.2	11.7		12 44.7	14.9	58.4	45	16 39	17 12	17 49	10 52	11 10	11 31	11 57
03		222	56.5		41.4	310 41.9	11.7		12 59.6	14.8	58.4	N 40	16 55	17 25	17 58	10 53	11 16	11 41	12 11
04		237	56.2		41.0	325 12.6	11.5		13 14.4	14.7	58.5	35	17 08	17 35	18 07	10 55	11 21	11 50	12 25
05		252	56.0		40.6	339 43.1	11.4		13 29.1	14.8	58.5	30	17 19	17 45	18 14	10 56	11 26	11 58	12 36
06		267	55.8	S 21	40.2	354 13.5	11.3	S	13 43.9	14.6	58.5	20	17 38	18 02	18 29	10 59	11 34	12 12	12 56
07		282	55.5		39.8	8 43.8	11.2		13 58.5	14.6	58.6	N 10	17 55	18 18	18 44	11 01	11 41	12 24	13 13
08		297	55.3		39.4	23 14.0	11.1		14 13.1	14.6	58.6	0	18 12	18 34	19 00	11 03	11 48	12 36	13 28
09		312	55.0		39.0	37 44.1	11.0		14 27.7	14.5	58.6	S 10	18 28	18 51	19 17	11 05	11 54	12 47	13 45
10		327	54.8		38.6	52 14.1	10.8		14 42.2	14.4	58.7	20	18 46	19 09	19 38	11 07	12 02	12 59	14 02
16	11	342	54.5		38.2	66 43.9	10.8		14 56.6	14.4	58.7	30	19 06	19 32	20 05	11 09	12 10	13 14	14 22
	D 12	357	54.3	S 21	37.8	81 13.7	10.6	S	15 11.0	14.3	58.7	35	19 17	19 46	20 22	11 11	12 15	13 22	14 33
	A 13	12	54.1		37.3	95 43.3	10.6		15 25.3	14.2	58.8	40	19 31	20 03	20 43	11 12	12 20	13 31	14 47
	Y 14	27	53.8		36.9	110 12.9	10.4		15 39.5	14.2	58.8	45	19 48	20 24	21 11	11 14	12 26	13 42	15 03
	15	42	53.6		36.5	124 42.3	10.3		15 53.7	14.1	58.8	S 50	20 08	20 50	21 50	11 16	12 34	13 56	15 23
	16	57	53.3		36.1	139 11.6	10.2		16 07.8	14.1	58.9	52	20 18	21 03	22 12	11 17	12 38	14 02	15 32
	17	72	53.1		35.7	153 40.8	10.1		16 21.9	13.9	58.9	54	20 28	21 19	22 41	11 18	12 41	14 09	15 43
	18	87	52.9	S 21	35.3	168 09.9	9.9	S	16 35.8	13.9	58.9	56	20 41	21 38	23 37	11 20	12 46	14 17	15 55
	19	102	52.6		34.9	182 38.8	9.9		16 49.7	13.9	59.0	S 58	20 55	22 01	///	11 21	12 51	14 26	16 09
	20	117	52.4		34.4	197 07.7													

G.M.T.	ARIES		VENUS -3.9		MARS +1.3		JUPITER -1.7		SATURN +0.8		STARS		
	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "		° ' "	° ' "
13	112 17.7	131 18.8 S 8 59.4	256 17.3 S 12 50.8	286 16.9 S 1 07.4	93 40.2 N 5 12.1	Acamar	315 43.4	S 40 25.8					
01	127 20.2	146 18.8 58.2	271 18.5 51.3	301 19.3 07.4	108 42.5 12.2	Achernar	335 51.3	S 57 23.9					
02	142 22.7	161 18.8 57.0	286 19.6 51.7	316 21.7 07.5	123 44.9 12.2	Acrux	173 47.1	S 62 55.4					
03	157 25.1	176 18.8 .. 55.8	301 20.7 .. 52.2	331 24.1 .. 07.5	138 47.3 .. 12.3	Adhara	255 38.5	S 28 55.7					
04	172 27.6	191 18.7 54.6	316 21.8 52.6	346 26.5 07.5	153 49.7 12.3	Aldebaran	291 27.7	N 16 27.1					
05	187 30.1	206 18.7 53.4	331 23.0 53.1	1 28.9 07.5	168 52.0 12.4								
06	202 32.5	221 18.7 S 8 52.2	346 24.1 S 12 53.5	16 31.3 S 1 07.5	183 54.4 N 5 12.4	Alioth	166 49.6	N 56 07.3					
07	217 35.0	236 18.7 51.0	1 25.2 54.0	31 33.7 07.5	198 56.8 12.5	Alkaid	153 25.1	N 49 27.7					
08	232 37.5	251 18.6 49.8	16 26.3 54.4	46 36.2 07.5	213 59.2 12.5	Al Na'ir	28 25.9	S 47 06.9					
09	247 39.9	266 18.6 .. 48.6	31 27.5 .. 54.9	61 38.6 .. 07.5	229 01.5 .. 12.6	Alnilam	276 20.1	S 1 13.1					
10	262 42.4	281 18.6 47.4	46 28.6 55.3	76 41.0 07.6	244 03.9 12.6	Alphard	218 28.7	S 8 31.3					
11	277 44.9	296 18.6 46.2	61 29.7 55.8	91 43.4 07.6	259 06.3 12.7								
12	292 47.3	311 18.6 S 8 45.0	76 30.8 S 12 56.2	106 45.8 S 1 07.6	274 08.6 N 5 12.7	Alphecca	126 39.5	N 26 48.8					
13	307 49.8	326 18.6 43.8	91 32.0 56.7	121 48.2 07.6	289 11.0 12.8	Alpheratz	358 18.5	N 28 55.3					
14	322 52.2	341 18.5 42.6	106 33.1 57.1	136 50.6 07.6	304 13.4 12.8	Altair	62 41.3	N 8 46.9					
15	337 54.7	356 18.5 .. 41.4	121 34.2 .. 57.6	151 53.0 .. 07.6	319 15.8 .. 12.9	Ankaa	353 48.6	S 42 28.7					
16	352 57.2	11 18.5 40.2	136 35.3 58.0	166 55.4 07.6	334 18.1 12.9	Antares	113 07.7	S 26 22.0					
17	7 59.6	26 18.5 39.0	151 36.4 58.5	181 57.8 07.6	349 20.5 13.0								
18	23 02.1	41 18.5 S 8 37.8	166 37.6 S 12 58.9	197 00.2 S 1 07.7	4 22.9 N 5 13.0	Arcturus	146 26.3	N 19 20.3					
19	38 04.6	56 18.5 36.6	181 38.7 59.3	212 02.6 07.7	19 25.2 13.1	Atria	108 40.3	S 68 58.3					
20	53 07.0	71 18.4 35.4	196 39.8 12 59.8	227 05.1 07.7	34 27.6 13.1	Avior	234 31.3	S 59 24.4					
21	68 09.5	86 18.4 .. 34.1	211 40.9 13 00.2	242 07.5 .. 07.7	49 30.0 .. 13.2	Bellatrix	279 07.7	N 6 19.5					
22	83 12.0	101 18.4 32.9	226 42.1 00.7	257 09.9 07.7	64 32.3 13.2	Betelgeuse	271 37.3	N 7 24.3					
23	98 14.4	116 18.4 31.7	241 43.2 01.1	272 12.3 07.7	79 34.7 13.3								
14	113 16.9	131 18.4 S 8 30.5	256 44.3 S 13 01.6	287 14.7 S 1 07.7	94 37.1 N 5 13.3	Canopus	264 10.5	S 52 40.6					
01	128 19.4	146 18.4 29.3	271 45.4 02.0	302 17.1 07.7	109 39.5 13.4	Capella	281 23.6	N 45 58.3					
02	143 21.8	161 18.4 28.1	286 46.6 02.5	317 19.5 07.7	124 41.8 13.4	Deneb	49 54.9	N 45 10.1					
03	158 24.3	176 18.4 .. 26.9	301 47.7 .. 02.9	332 21.9 .. 07.7	139 44.2 .. 13.5	Denebola	183 07.6	N 14 44.6					
04	173 26.7	191 18.4 25.7	316 48.8 03.4	347 24.3 07.8	154 46.6 13.5	Diphda	349 29.5	S 18 09.5					
05	188 29.2	206 18.4 24.5	331 49.9 03.8	2 26.8 07.8	169 48.9 13.6								
06	203 31.7	221 18.4 S 8 23.3	346 51.1 S 13 04.3	17 29.2 S 1 07.8	184 51.3 N 5 13.6	Dubhe	194 31.9	N 61 54.9					
07	218 34.1	236 18.4 22.1	1 52.2 04.7	32 31.6 07.8	199 53.7 13.7	Elnath	278 54.7	N 28 35.1					
08	233 36.6	251 18.4 20.8	16 53.3 05.1	47 34.0 07.8	214 56.0 13.7	Eltanin	91 02.2	N 51 29.2					
09	248 39.1	266 18.4 .. 19.6	31 54.4 .. 05.6	62 36.4 .. 07.8	229 58.4 .. 13.8	Enif	34 20.3	N 9 43.8					
10	263 41.5	281 18.4 18.4	46 55.6 06.0	77 38.8 07.8	245 00.8 13.8	Fomalhaut	16 01.0	S 29 47.4					
11	278 44.0	296 18.4 17.2	61 56.7 06.5	92 41.2 07.8	260 03.1 13.9								
12	293 46.5	311 18.4 S 8 16.0	76 57.8 S 13 06.9	107 43.7 S 1 07.8	275 05.5 N 5 13.9	Gacrux	172 38.5	S 56 56.2					
13	308 48.9	326 18.4 14.8	91 59.0 07.4	122 46.1 07.8	290 07.9 14.0	Gienah	176 26.8	S 17 22.2					
14	323 51.4	341 18.4 13.6	107 00.1 07.8	137 48.5 07.8	305 10.2 14.1	Hadar	149 36.0	S 60 13.3					
15	338 53.9	356 18.4 .. 12.4	122 01.2 .. 08.3	152 50.9 .. 07.8	320 12.6 .. 14.1	Hamal	328 38.6	N 23 19.1					
16	353 56.3	11 18.4 11.2	137 02.3 08.7	167 53.3 07.9	335 15.0 14.2	Kaus Aust.	84 28.6	S 34 24.2					
17	8 58.8	26 18.4 09.9	152 03.5 09.1	182 55.7 07.9	350 17.3 14.2								
18	24 01.2	41 18.4 S 8 08.7	167 04.6 S 13 09.6	197 58.2 S 1 07.9	5 19.7 N 5 14.3	Kochab	137 18.4	N 74 16.5					
19	39 03.7	56 18.4 07.5	182 05.7 10.0	213 00.6 07.9	20 22.1 14.3	Markab	14 12.0	N 15 02.3					
20	54 06.2	71 18.4 06.3	197 06.8 10.5	228 03.0 07.9	35 24.4 14.4	Menkar	314 50.0	N 5 28.2					
21	69 08.6	86 18.4 .. 05.1	212 08.0 .. 10.9	243 05.4 .. 07.9	50 26.8 .. 14.4	Menkent	148 47.4	S 36 13.0					
22	84 11.1	101 18.4 03.9	227 09.1 11.4	258 07.8 07.9	65 29.2 14.5	Miaplacidus	221 46.4	S 69 35.1					
23	99 13.6	116 18.4 02.7	242 10.2 11.8	273 10.2 07.9	80 31.5 14.5								
15	114 16.0	131 18.4 S 8 01.4	257 11.3 S 13 12.2	288 12.7 S 1 07.9	95 33.9 N 5 14.6	Mirfak	309 28.4	N 49 45.4					
01	129 18.5	146 18.4 8 00.2	272 12.5 12.7	303 15.1 07.9	110 36.3 14.6	Nunki	76 40.2	S 26 20.4					
02	144 21.0	161 18.4 7 59.0	287 13.6 13.1	318 17.5 07.9	125 38.6 14.7	Pecock	54 12.4	S 56 50.3					
03	159 23.4	176 18.5 .. 57.8	302 14.7 .. 13.6	333 19.9 .. 07.9	140 41.0 .. 14.7	Pollux	244 08.3	N 28 06.2					
04	174 25.9	191 18.5 56.6	317 15.9 14.0	348 22.3 07.9	155 43.4 14.8	Procyon	245 34.4	N 5 18.4					
05	189 28.4	206 18.5 55.4	332 17.0 14.5	3 24.8 07.9	170 45.7 14.8								
06	204 30.8	221 18.5 S 7 54.2	347 18.1 S 13 14.9	18 27.2 S 1 08.0	185 48.1 N 5 14.9	Rasalhague	96 37.9	N 12 34.6					
07	219 33.3	236 18.5 52.9	2 19.2 15.3	33 29.6 08.0	200 50.5 14.9	Regulus	208 18.8	N 12 07.1					
08	234 35.7	251 18.5 51.7	17 20.4 15.8	48 32.0 08.0	215 52.8 15.0	Rigel	281 44.0	S 8 14.1					
09	249 38.2	266 18.5 .. 50.5	32 21.5 .. 16.2	63 34.4 .. 08.0	230 55.2 .. 15.0	Rigel Kent.	140 38.0	S 60 42.2					
10	264 40.7	281 18.6 49.3	47 22.6 16.7	78 36.9 08.0	245 57.6 15.1	Sabik	102 51.3	S 15 41.4					
11	279 43.1	296 18.6 48.1	62 23.7 17.1	93 39.3 08.0	260 59.9 15.2								
12	294 45.6	311 18.6 S 7 46.9	77 24.9 S 13 17.5	108 41.7 S 1 08.0	276 02.3 N 5 15.2	Schedar	350 19.3	N 56 22.3					
13	309 48.1	326 18.6 45.6	92 26.0 18.0	123 44.1 08.0	291 04.7 15.3	Shaula	97 07.9	S 37 05.0					
14	324 50.5	341 18.6 44.4	107 27.1 18.4	138 46.6 08.0	306 07.0 15.3	Sirius	259 03.0	S 16 40.3					
15	339 53.0	356 18.6 .. 43.2	122 28.3 .. 18.9	153 49.0 .. 08.0	321 09.4 .. 15.4	Spica	159 06.6	S 11 00.1					
16	354 55.5	11 18.7 42.0	137 29.4 19.3	168 51.4 08.0	336 11.7 15.4	Suhail	223 16.9	S 43 18.3					
17	9 57.9	26 18.7 40.8	152 30.5 19.7	183 53.8 08.0	351 14.1 15.5								
18	25 00.4	41 18.7 S 7 39.5	167 31.6 S 13 20.2	198 56.3 S 1 08.0	6 16.5 N 5 15.5	Vega	81 02.1	N 38 45.0					
19	40 02.9	56 18.7 38.3	182 32.8 20.6	213 58.7 08.0	21 18.8 15.6	Zuben'ubi	137 42.7	S 15 54.9					
20	55 05.3	71 18.8 37.1	197 33.9 21.1	229 01.1 08.0	36 21.2 15.6								
21	70 07.8	86 18.8 .. 35.9	212 35.0 .. 21.5	244 03.5 .. 08.0	51 23.6 .. 15.7								
22	85 10.2	101 18.8 34.7	227 36.2 21.9	259 06.0 08.0	66 25.9 15.7	Venus	18 01.5	15 15					
23	100 12.7	116 18.8 33.4	242 37.3 22.4	274 08.4 08.0	81 28.3 15.8	Mars	143 27.4	6 53					
						Jupiter	173 57.8	4 50					
						Saturn	341 20.2	17 39					
Mer. Pass.	16 24.2	v 0.0 d 1.2	v 1.1 d 0.4	v 2.4 d 0.0	v 2.4 d 0.1								

G.M.T.		SUN		MOON						Lat.	Twilight		Sun-rise	Moonrise				
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.	Naut.		Civil	13		14	15	16		
d	h	°	'	°	'	°	'	°	'	°	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>
13	00	177 51.4	S 21 32.8	255 01.8	9.2	S 17 58.1	13.4	59.1	N 72	08 03	09 56	■	06 21	■	■	■	■	■
	01	192 51.2	32.4	269 30.0	9.1	18 11.5	13.3	59.2	N 70	07 48	09 21	■	05 10	■	■	■	■	■
	02	207 51.0	31.9	283 58.1	9.0	18 24.8	13.3	59.2	68	07 36	08 56	10 39	05 10	■	■	■	■	■
	03	222 50.7	31.5	298 26.1	8.8	18 38.1	13.1	59.2	66	07 25	08 37	09 56	04 34	■	■	■	■	■
	04	237 50.5	31.1	312 53.9	8.7	18 51.2	13.1	59.2	64	07 17	08 21	09 28	04 09	06 37	■	■	■	■
MONDAY	05	252 50.3	30.7	327 21.6	8.6	19 04.3	12.9	59.3	62	07 09	08 08	09 07	03 49	05 56	08 27	■	■	■
	06	267 50.0	S 21 30.2	341 49.2	8.4	S 19 17.2	12.9	59.3	60	07 02	07 56	08 49	03 33	05 28	07 27	09 03	■	■
	07	282 49.8	29.8	356 16.6	8.3	19 30.1	12.8	59.3	N 58	06 56	07 47	08 35	03 20	05 06	06 53	08 21	■	■
	08	297 49.6	29.4	10 43.9	8.2	19 42.9	12.7	59.4	56	06 50	07 38	08 23	03 08	04 49	06 28	07 52	■	■
	09	312 49.3	29.0	25 11.1	8.1	19 55.6	12.5	59.4	54	06 45	07 30	08 12	02 58	04 34	06 09	07 30	■	■
TUESDAY	10	327 49.1	28.5	39 38.2	7.9	20 08.1	12.5	59.4	52	06 40	07 23	08 02	02 49	04 21	05 52	07 11	■	■
	11	342 48.8	28.1	54 05.1	7.8	20 20.6	12.3	59.5	50	06 36	07 17	07 54	02 41	04 10	05 38	06 56	■	■
	12	357 48.6	S 21 27.7	68 31.9	7.6	S 20 32.9	12.3	59.5	45	06 26	07 02	07 35	02 24	03 46	05 09	06 24	■	■
	13	12 48.4	27.3	82 58.5	7.5	20 45.2	12.1	59.5	N 40	06 17	06 51	07 21	02 10	03 28	04 46	06 00	■	■
	14	27 48.1	26.8	97 25.0	7.4	20 57.3	12.1	59.6	35	06 09	06 40	07 08	01 59	03 12	04 27	05 40	■	■
WEDNESDAY	15	42 47.9	26.4	111 51.4	7.2	21 09.4	11.9	59.6	30	06 02	06 31	06 57	01 49	02 59	04 11	05 23	■	■
	16	57 47.7	26.0	126 17.6	7.1	21 21.3	11.8	59.6	20	05 47	06 14	06 38	01 31	02 36	03 45	04 54	■	■
	17	72 47.4	25.5	140 43.7	7.0	21 33.1	11.6	59.6	N 10	05 33	05 58	06 21	01 17	02 17	03 21	04 29	■	■
	18	87 47.2	S 21 25.1	155 09.7	6.8	S 21 44.7	11.6	59.7	0	05 17	05 43	06 05	01 03	01 58	03 00	04 06	■	■
	19	102 47.0	24.7	169 35.5	6.7	21 56.3	11.4	59.7	S 10	05 00	05 27	05 49	00 49	01 40	02 39	03 43	■	■
THURSDAY	20	117 46.7	24.2	184 01.2	6.5	22 07.7	11.3	59.7	20	04 40	05 08	05 32	00 34	01 21	02 16	03 19	■	■
	21	132 46.5	23.8	198 26.7	6.4	22 19.0	11.2	59.8	30	04 13	04 46	05 12	00 18	00 59	01 50	02 50	■	■
	22	147 46.3	23.4	212 52.1	6.3	22 30.2	11.0	59.8	35	03 57	04 32	05 01	00 08	00 47	01 34	02 33	■	■
	23	162 46.1	22.9	227 17.4	6.1	22 41.2	10.9	59.8	40	03 36	04 16	04 47	24 32	00 32	01 16	02 14	■	■
	24	177 45.8	S 21 22.5	241 42.5	6.0	S 22 52.1	10.8	59.9	45	03 09	03 56	04 31	24 15	00 15	00 55	01 50	■	■
FRIDAY	00	192 45.6	22.1	256 07.5	5.9	23 02.9	10.6	59.9	S 50	02 31	03 30	04 12	23 54	24 28	00 28	01 19	■	■
	01	207 45.4	21.6	270 32.4	5.7	23 13.5	10.5	59.9	52	02 10	03 17	04 02	23 44	24 15	00 15	01 04	■	■
	02	222 45.1	21.2	284 57.1	5.6	23 24.0	10.4	59.9	54	01 42	03 02	03 51	23 32	24 00	00 00	00 47	■	■
	03	237 44.9	20.7	299 21.7	5.4	23 34.4	10.2	60.0	56	00 55	02 44	03 39	23 19	23 43	24 26	00 26	■	■
	04	252 44.7	20.3	313 46.1	5.3	23 44.6	10.1	60.0	58	///	02 21	03 25	23 05	23 22	23 59	25 11	■	■
SATURDAY	05	267 44.4	S 21 19.9	328 10.4	5.2	S 23 54.7	9.9	60.0	S 60	///	01 51	03 09	22 47	22 55	23 22	24 35	■	■
	06	282 44.2	19.4	342 34.6	5.1	24 04.6	9.8	60.1	Lat.	Sun-set	Twilight		Moonset					
	07	297 44.0	19.0	356 58.7	4.9	24 14.4	9.6	60.1			Civil	Naut.	13	14	15	16		
	08	312 43.8	18.5	11 22.6	4.7	24 24.0	9.4	60.1	°	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	
	09	327 43.5	18.1	25 46.3	4.7	24 33.4	9.3	60.1	N 72	14 23	16 16	17 17	10 42	10 42	11 57	13 18	14 20	
SUNDAY	10	342 43.3	17.7	40 10.0	4.5	24 42.7	9.2	60.2	N 70	14 58	16 31	17 23	10 57	11 08	11 31	12 24	13 15	
	11	357 43.1	S 21 17.2	54 33.5	4.3	S 24 51.9	9.0	60.2	68	13 40	15 23	16 43	09 00	10 00	11 09	12 13	13 13	
	12	12 42.8	16.8	68 56.8	4.3	25 00.9	8.8	60.2	66	14 22	15 42	16 53	09 37	10 37	11 41	12 45	13 45	
	13	27 42.6	16.3	83 20.1	4.1	25 09.7	8.7	60.2	64	14 50	15 58	17 02	10 04	09 35	10 58	12 06	13 06	
	14	42 42.4	15.9	97 43.2	3.9	25 18.4	8.4	60.3	62	15 12	16 11	17 10	10 25	10 17	11 38	12 48	13 49	
MONDAY	15	57 42.2	15.4	112 06.1	3.9	25 26.8	8.4	60.3	60	15 29	16 22	17 17	10 42	10 45	11 57	13 18	14 20	
	16	72 41.9	15.0	126 29.0	3.7	25 35.2	8.1	60.3	N 58	15 44	16 32	17 23	10 57	11 08	11 31	12 24	13 24	
	17	87 41.7	S 21 14.5	140 51.7	3.6	S 25 43.3	8.0	60.3	56	15 56	16 41	17 28	11 09	11 26	11 57	12 53	13 53	
	18	102 41.5	14.1	155 14.3	3.5	25 51.3	7.8	60.4	54	16 07	16 49	17 33	11 20	11 41	12 17	13 15	14 15	
	19	117 41.3	13.6	169 36.8	3.4	25 59.1	7.6	60.4	52	16 16	16 56	17 38	11 30	11 55	12 34	13 33	14 33	
TUESDAY	20	132 41.0	13.2	183 59.2	3.2	26 06.7	7.5	60.4	50	16 25	17 02	17 42	11 38	12 06	12 48	13 49	14 49	
	21	147 40.8	12.7	198 21.4	3.1	26 14.2	7.2	60.4	45	16 43	17 16	17 52	11 57	12 31	13 18	14 20	15 20	
	22	162 40.6	12.3	212 43.5	3.0	26 21.4	7.1	60.4	N 40	16 58	17 28	18 01	12 12	12 51	13 41	14 45	15 45	
	23	177 40.4	S 21 11.8	227 05.5	2.9	S 26 28.5	6.9	60.5	35	17 10	17 38	18 09	12 25	13 07	14 00	15 05	16 05	
	24	192 40.1	11.4	241 27.4	2.8	26 35.4	6.7	60.5	30	17 22	17 47	18 17	12 36	13 22	14 17	15 22	16 22	
WEDNESDAY	00	207 39.9	10.9	255 49.2	2.6	26 42.1	6.5	60.5	20	17 40	18 04	18 31	12 56	13 46	14 45	15 51	16 51	
	01	222 39.7	10.4	270 10.8	2.6	26 48.6	6.4	60.5	N 10	17 57	18 20	18 45	13 13	14 07	15 09	16 15	17 15	
	02	237 39.5	10.0	284 32.4	2.4	26 55.0	6.1	60.6	0	18 13	18 35	19 01	13 28	14 27	15 31	16 38	17 38	
	03	252 39.3	09.5	298 53.8	2.4	27 01.1	5.9	60.6	S 10	18 29	18 51	19 18	13 45	14 47	15 53	17 01	18 01	
	04	267 39.0	S 21 09.1	313 15.2	2.2	S 27 07.0	5.8	60.6	20	18 46	19 10	19 38	14 02	15 08	16 18	17 26	18 26	
THURSDAY	05	282 38.8	08.6	327 36.4	2.2	27 12.8	5.5	60.6	30	19 05	19 32	20 04	14 22	15 33	16 46	17 54	18 54	
	06	297 38.6	08.2	341 57.6	2.0	27 18.3	5.4	60.6	35	19 17	19 46	20 21	14 33	15 48	17 02	18 11	19 11	
	07	312 38.4	07.7	356 18.6	2.0	27 23.7	5.1	60.6	40	19 30	20 02	20 41	14 47	16 05	17 22	18 30	19 30	
	08	327 38.1	07.2	10 39.6	1.8	27 28.8	4.9	60.7	45	19 46	20 22	21 08	15 03	16 25	17 45	18 54	19 54	
	09	342 37.9	06.8	25 00.4	1.8	27 33.7	4.8	60.7	S 50	20 06	20 48	21 45	15 23	16 51	18 15	19 25	20 25	
FRIDAY	10	357 37.7	S 21 06.3	39 21.2	1.7	S 27 38.5	4.5	60.7	52	20 15	21 00	22 06	15 32	17 04	18 30	19 40	20 40	
	11	12 37.5	05.9	53 41.9	1.6	27 43.0	4.3	60.7	54	20 26	21 15	22 33	15 43	17 18	18 48	19		

		ARIES			VENUS -4.0			MARS +1.3			JUPITER -1.8			SATURN +0.8			STARS									
G.M.T.		G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.											
d	h	°	'	"	°	'	°	'	°	'	°	'		°	'	°	'									
1600	01	115	15.2		131	18.9 S	7	32.2	257	38.4 S	13	22.8	289	10.8 S	1	08.1	96	30.6 N	5	15.8	Acamar	315	43.5	S	40	25.8
	02	130	17.6		146	18.9		31.0	272	39.5		23.2	304	13.2		08.1	111	33.0		15.9	Achernar	335	51.3	S	57	23.9
	03	145	20.1		161	18.9		29.8	287	40.7		23.7	319	15.7		08.1	126	35.4		16.0	Acrux	173	47.0	S	62	55.4
	04	160	22.6		176	19.0		28.6	302	41.8		24.1	334	18.1		08.1	141	37.7		16.0	Adhara	255	38.5	S	28	55.7
	05	175	25.0		191	19.0		27.3	317	42.9		24.6	349	20.5		08.1	156	40.1		16.1	Aldebaran	291	27.7	N	16	27.0
	06	190	27.5		206	19.0		26.1	332	44.1		25.0	4	22.9		08.1	171	42.5		16.1						
	07	205	30.0		221	19.1 S	7	24.9	347	45.2 S	13	25.4	19	25.4 S	1	08.1	186	44.8 N	5	16.2	Alioth	166	49.6	N	56	07.3
	08	220	32.4		236	19.1		23.7	2	46.3		25.9	34	27.8		08.1	201	47.2		16.2	Alkaid	153	25.0	N	49	27.7
	09	235	34.9		251	19.1		22.5	17	47.4		26.3	49	30.2		08.1	216	49.5		16.3	Al Na'ir	28	25.9	S	47	06.9
	10	250	37.4		266	19.2		21.2	32	48.6		26.7	64	32.7		08.1	231	51.9		16.3	Alnilam	276	20.1	S	1	13.1
	11	265	39.8		281	19.2		20.0	47	49.7		27.2	79	35.1		08.1	246	54.3		16.4	Alphard	218	28.7	S	8	31.4
	12	280	42.3		296	19.2		18.8	62	50.8		27.6	94	37.5		08.1	261	56.6		16.4						
	13	295	44.7		311	19.3 S	7	17.6	77	52.0 S	13	28.1	109	39.9 S	1	08.1	276	59.0 N	5	16.5	Alphecca	126	39.5	N	26	48.8
	14	310	47.2		326	19.3		16.4	92	53.1		28.5	124	42.4		08.1	292	01.3		16.5	Alpheratz	358	18.5	N	28	55.3
	15	325	49.7		341	19.3		15.1	107	54.2		28.9	139	44.8		08.1	307	03.7		16.6	Altair	62	41.3	N	8	46.9
	16	340	52.1		356	19.4		13.9	122	55.3		29.4	154	47.2		08.1	322	06.0		16.7	Ankaa	353	48.7	S	42	28.7
	17	355	54.6		11	19.4		12.7	137	56.5		29.8	169	49.7		08.1	337	08.4		16.7	Antares	113	07.7	S	26	22.0
	18	10	57.1		26	19.5		11.5	152	57.6		30.2	184	52.1		08.1	352	10.8		16.8						
	19	25	59.5		41	19.5 S	7	10.2	167	58.7 S	13	30.7	199	54.5 S	1	08.1	7	13.1 N	5	16.8	Arcturus	146	26.3	N	19	20.3
	20	41	02.0		56	19.5		09.0	182	59.9		31.1	214	57.0		08.1	22	15.5		16.9	Atria	108	40.2	S	68	58.3
	21	56	04.5		71	19.6		07.8	198	01.0		31.5	229	59.4		08.1	37	17.8		16.9	Avior	234	31.3	S	59	24.4
	22	71	06.9		86	19.6		06.6	213	02.1		32.0	245	01.8		08.1	52	20.2		17.0	Bellatrix	279	07.7	N	6	19.5
	23	86	09.4		101	19.7		05.3	228	03.3		32.4	260	04.3		08.1	67	22.6		17.0	Betelgeuse	271	37.3	N	7	24.3
		101	11.8		116	19.7		04.1	243	04.4		32.8	275	06.7		08.1	82	24.9		17.1						
1700	01	116	14.3		131	19.8 S	7	02.9	258	05.5 S	13	33.3	290	09.1 S	1	08.1	97	27.3 N	5	17.1	Canopus	264	10.5	S	52	40.7
	02	131	16.8		146	19.8		01.7	273	06.6		33.7	305	11.5		08.1	112	29.6		17.2	Capella	281	23.6	N	45	58.3
	03	146	19.2		161	19.9		7 00.4	288	07.8		34.1	320	14.0		08.1	127	32.0		17.3	Deneb	49	54.9	N	45	10.0
	04	161	21.7		176	19.9		6 59.2	303	08.9		34.6	335	16.4		08.1	142	34.3		17.3	Denebola	183	07.6	N	14	44.6
	05	176	24.2		191	19.9		58.0	318	10.0		35.0	350	18.9		08.1	157	36.7		17.4	Diphda	349	29.5	S	18	09.5
	06	191	26.6		206	20.0		56.8	333	11.2		35.4	5	21.3		08.1	172	39.1		17.4						
	07	206	29.1		221	20.0 S	6	55.5	348	12.3 S	13	35.9	20	23.7 S	1	08.1	187	41.4 N	5	17.5	Dubhe	194	31.8	N	61	54.9
	08	221	31.6		236	20.1		54.3	3	13.4		36.3	35	26.2		08.1	202	43.8		17.5	Elnath	278	54.7	N	28	35.2
	09	236	34.0		251	20.2		53.1	18	14.6		36.7	50	28.6		08.1	217	46.1		17.6	Eltanin	91	02.2	N	51	29.2
	10	251	36.5		266	20.2		51.9	33	15.7		37.2	65	31.0		08.1	232	48.5		17.6	Enif	34	20.3	N	9	43.8
	11	266	39.0		281	20.3		50.6	48	16.8		37.6	80	33.5		08.1	247	50.8		17.7	Fomalhaut	16	01.0	S	29	47.4
	12	281	41.4		296	20.3		49.4	63	18.0		38.0	95	35.9		08.1	262	53.2		17.8						
	13	296	43.9		311	20.4 S	6	48.2	78	19.1 S	13	38.5	110	38.3 S	1	08.1	277	55.5 N	5	17.8	Gacrux	172	38.5	S	56	56.2
	14	311	46.3		326	20.4		47.0	93	20.2		38.9	125	40.8		08.1	292	57.9		17.9	Gienah	176	26.8	S	17	22.2
	15	326	48.8		341	20.5		45.7	108	21.3		39.3	140	43.2		08.1	308	00.3		17.9	Hadar	149	36.0	S	60	13.3
	16	341	51.3		356	20.5		44.5	123	22.5		39.8	155	45.7		08.1	323	02.6		18.0	Hamal	328	38.6	N	23	19.1
	17	356	53.7		11	20.6		43.3	138	23.6		40.2	170	48.1		08.1	338	05.0		18.0	Kaus Aust.	84	28.6	S	34	24.2
	18	11	56.2		26	20.6		42.0	153	24.7		40.6	185	50.5		08.1	353	07.3		18.1						
	19	26	58.7		41	20.7 S	6	40.8	168	25.9 S	13	41.1	200	53.0 S	1	08.1	8	09.7 N	5	18.2	Kochab	137	18.3	N	74	16.5
	20	42	01.1		56	20.8		39.6	183	27.0		41.5	215	55.4		08.1	23	12.0		18.2	Markab	14	12.0	N	15	02.3
	21	57	03.6		71	20.8		38.4	198	28.1		41.9	230	57.9		08.1	38	14.4		18.3	Menkar	314	50.0	N	3	58.2
	22	72	06.1		86	20.9		37.1	213	29.3		42.4	246	00.3		08.1	53	16.7		18.3	Menkent	148	47.3	S	36	13.0
	23	87	08.5		101	20.9		35.9	228	30.4		42.8	261	02.7		08.1	68	19.1		18.4	Miaplacidus	221	46.4	S	69	35.1
		102	11.0		116	21.0		34.7	243	31.5		43.2	276	05.2		08.1	83	21.5		18.4						
1800	01	117	13.5		131	21.1 S	6	33.4	258	32.7 S	13	43.6	291	07.6 S	1	08.1	98	23.8 N	5	18.5	Mirfak	309	28.4	N	49	45.4
	02	132	15.9		146	21.1		32.2	273	33.8		44.1	306	10.1		08.1	113	26.2		18.6	Nunki	76	40.2	S	26	20.4
	03	147	18.4		161	21.2		31.0	288	34.9		44.5	321	12.5		08.1	128	28.5		18.6	Peacock	54	12.3	S	56	50.3
	04	162	20.8		176	21.3		29.8	303	36.1		44.9	336	14.9		08.1	143	30.9		18.7	Pollux	244	08.3	N	28	06.2
	05	177	23.3		191	21.3		28.5	318	37.2		45.4	351	17.4		08.1	158	33.2		18.7	Procyon	245	34.4	N	5	18.4
	06	192	25.8		206	21.4		27.3	333	38.3		45.8	6	19.8		08.1	173	35.6		18.8						
	07	207	28.2		221	21.5 S	6	26.1	348	39.5 S	13	46.2	21	22.3 S	1	08.1	188	37.9 N	5	18.8	Rasalhague	96	37.8	N	12	34.6
	08	222	30.7		236	21.5		24.8	3	40.6		46.7	36	24.7		08.1	203	40.3		18.9	Regulus	208	18.8	N	12	07.1
	09	237	33.2		251	21.6		23.6	18	41.7		47.1	51	27.2		08.1	218	42.6		19.0	Rigel	281	44.0	S	8	14.1
	10	252	35.6		266	21.7		22.4	33	42.9		47.5	66	29.6		08.1	233	45.0		19.0	Rigel Kent.	140	37.9	S	60	42.2
	11	267	38.1		281	21.8		21.1	48	44.0		47.9	81	32.0		08.1	248									

Mer. Pass. 16 12.4

v 0.1 d 1.2

v 1.1 d 0.4

v 2.4 d 0.0

v

G.M.T.		SUN		MOON						Lat.	Twilight		Sun-rise	Moonrise							
		G.H.A.	Dec.	G.H.A.	v	Dec.	d	H.P.	Naut.		Civil	16		17	18	19					
d	h	m	s	m	s	m	s	m	s	°	'	'	'	'	'	'	'	'	'		
16	00	177	35.1	S 21	00.7	211	24.6	0.9	S 28	18.9	2.0	60.9	N 72	07 56	09 44	■	■	■	■		
	01	192	34.9	21	00.2	225	44.5	0.9	S 28	20.9	1.8	60.9	N 70	07 42	09 12	11 46	■	■	12 21		
	02	207	34.6	20	59.8	240	04.4	0.8	S 28	22.7	1.5	60.9	68	07 31	08 49	10 24	■	■	11 29		
	03	222	34.4	..	59.3	254	24.2	0.7	S 28	24.2	1.3	60.9	66	07 21	08 31	09 47	■	■	10 57		
	04	237	34.2		58.8	268	43.9	0.8	S 28	25.5	1.1	60.9	64	07 13	08 16	09 21	■	■	10 59		
05	252	34.0		58.4	283	03.7	0.7	S 28	26.6	0.8	60.9	62	07 05	08 03	09 01	■	10 39	10 21	10 13		
06	267	33.8	S 20	57.9	297	23.4	0.7	S 28	27.4	0.7	60.9	60	06 59	07 53	08 45	09 03	09 43	09 54	09 57		
07	282	33.6		57.4	311	43.1	0.6	S 28	28.1	0.4	61.0	N 58	06 53	07 43	08 31	08 21	09 11	09 33	09 44		
T H U	08	297	33.4		56.9	326	02.7	0.7	S 28	28.5	0.2	61.0	56	06 48	07 35	08 19	07 52	08 46	09 16	09 31	
	09	312	33.1	..	56.5	340	22.4	0.6	S 28	28.7	0.0	61.0	54	06 43	07 27	08 09	07 30	08 26	09 01	09 22	
	10	327	32.9		56.0	354	42.0	0.6	S 28	28.7	0.3	61.0	52	06 39	07 21	07 59	07 11	08 10	08 48	09 12	
	11	342	32.7		55.5	9	01.6	0.7	S 28	28.4	0.5	61.0	50	06 34	07 15	07 51	06 56	07 55	08 36	09 04	
	12	357	32.5	S 20	55.0	23	21.3	0.6	S 28	27.9	0.7	61.0	45	06 25	07 01	07 34	06 24	07 26	08 12	08 46	
S D A Y	13	12	32.3		54.5	37	40.9	0.6	S 28	27.2	0.9	61.0	N 40	06 16	06 50	07 19	06 00	07 03	07 53	08 32	
	14	27	32.1		54.1	52	00.5	0.6	S 28	26.3	1.2	61.0	35	06 09	06 40	07 07	05 40	06 44	07 37	08 20	
	15	42	31.9	..	53.6	66	20.1	0.6	S 28	25.1	1.3	61.0	30	06 01	06 31	06 56	05 23	06 27	07 23	08 09	
	16	57	31.6		53.1	80	39.7	0.6	S 28	23.8	1.6	61.0	20	05 47	06 14	06 38	04 54	06 00	06 59	07 50	
	17	72	31.4		52.6	94	59.3	0.7	S 28	22.2	1.9	61.0	N 10	05 33	05 59	06 22	04 29	05 36	06 38	07 34	
18	87	31.2	S 20	52.1	109	19.0	0.7	S 28	20.3	2.0	61.0	0	05 19	05 44	06 07	04 06	05 14	06 18	07 18		
19	102	31.0		51.7	123	38.7	0.7	S 28	18.3	2.3	61.0	S 10	05 02	05 28	05 51	03 43	04 51	05 59	07 03		
20	117	30.8		51.2	137	58.4	0.7	S 28	16.0	2.5	61.0	20	04 42	05 10	05 34	03 19	04 27	05 38	06 46		
21	132	30.6	..	50.7	152	18.1	0.7	S 28	13.5	2.7	61.0	30	04 16	04 48	05 15	02 50	03 59	05 13	06 27		
22	147	30.4		50.2	166	37.8	0.8	S 28	10.8	2.9	61.0	35	04 00	04 35	05 04	02 33	03 43	04 59	06 16		
23	162	30.2		49.7	180	57.6	0.8	S 28	07.9	3.2	61.0	40	03 40	04 19	04 51	02 14	03 24	04 42	06 03		
17 00	177	30.0	S 20	49.2	195	17.4	0.9	S 28	04.7	3.4	61.0	45	03 14	04 00	04 35	01 50	03 00	04 22	05 47		
01	192	29.7		48.7	209	37.3	0.9	S 28	01.3	3.6	61.0	S 50	02 38	03 35	04 16	01 19	02 30	03 57	05 28		
02	207	29.5		48.3	223	57.2	1.0	S 27	57.7	3.8	61.0	52	02 18	03 22	04 07	01 04	02 16	03 44	05 19		
03	222	29.3	..	47.8	238	17.2	1.0	S 27	53.9	4.0	61.0	54	01 53	03 08	03 57	00 47	01 58	03 30	05 09		
04	237	29.1		47.3	252	37.2	1.0	S 27	49.9	4.3	61.0	56	01 14	02 51	03 45	00 26	01 38	03 14	04 58		
05	252	28.9		46.8	266	57.2	1.2	S 27	45.6	4.4	61.0	58	///	02 30	03 32	25 11	01 11	02 54	04 45		
06	267	28.7	S 20	46.3	281	17.4	1.2	S 27	41.2	4.7	61.0	S 60	///	02 02	03 16	24 35	00 35	02 29	04 29		
07	282	28.5		45.8	295	37.6	1.2	S 27	36.5	4.9	61.0	Lat.		Sun-set		Twilight		Moonset			
08	297	28.3		45.3	309	57.8	1.3	S 27	31.6	5.1	61.0	Civil		Naut.		16	17	18	19		
F O R	09	312	28.1	..	44.8	324	18.1	1.4	S 27	26.5	5.3	61.0	h m		h m		h m		h m		
	10	327	27.9		44.3	338	38.5	1.5	S 27	21.2	5.5	61.0	N 72		14 37		16 25		18 13		
	11	342	27.7		43.8	352	59.0	1.5	S 27	15.7	5.8	61.0	N 70		12 36		15 09		16 39		
	12	357	27.5	S 20	43.3	7	19.5	1.7	S 27	09.9	5.9	61.0	68		13 56		15 32		16 50		
	13	12	27.2		42.8	21	40.2	1.7	S 27	04.0	6.2	61.0	66		14 34		15 50		17 00		
D A Y	14	27	27.0		42.3	36	00.9	1.8	S 26	57.8	6.3	61.0	64		15 00		16 05		17 08		
	15	42	26.8	..	41.8	50	21.7	1.8	S 26	51.5	6.5	61.0	62		15 20		16 18		17 15		
	16	57	26.6		41.4	64	42.5	2.0	S 26	45.0	6.8	61.0	60		15 36		16 28		17 22		
	17	72	26.4		40.9	79	03.5	2.1	S 26	38.2	6.9	61.0	N 58		15 50		16 38		17 28		
	18	87	26.2	S 20	40.4	93	24.6	2.2	S 26	31.3	7.2	61.0	56		16 02		16 46		17 33		
19	102	26.0		39.9	107	45.8	2.2	S 26	24.1	7.3	60.9	54		16 12		16 53		17 38			
20	117	25.8		39.4	122	07.0	2.4	S 26	16.8	7.6	60.9	52		16 21		17 00		17 42			
21	132	25.6	..	38.9	136	28.4	2.5	S 26	09.2	7.7	60.9	50		16 29		17 06		17 46			
22	147	25.4		38.3	150	49.9	2.5	S 26	01.5	7.9	60.9	45		16 47		17 19		17 56			
23	162	25.2		37.8	165	11.4	2.7	S 25	53.6	8.1	60.9	N 40		17 01		17 31		18 04			
18 00	177	25.0	S 20	37.3	179	33.1	2.8	S 25	45.5	8.3	60.9	35		17 13		17 41		18 12			
01	192	24.8		36.8	193	54.9	2.9	S 25	37.2	8.5	60.9	30		17 24		17 50		18 19			
02	207	24.6		36.3	208	16.8	3.1	S 25	28.7	8.6	60.9	20		17 42		18 06		18 33			
03	222	24.4	..	35.8	222	38.9	3.1	S 25	20.1	8.9	60.8	N 10		17 58		18 21		18 47			
04	237	24.2		35.3	237	01.0	3.3	S 25	11.2	9.0	60.8	0	18 14	18 36	19 02	16 38	17 45	18 48	19 45		
05	252	24.0		34.8	251	23.3	3.4	S 25	02.2	9.2	60.8	S 10		18 29		18 52		19 18			
06	267	23.8	S 20	34.3	265	45.7	3.5	S 24	53.0	9.3	60.8	20		18 46		19 09		19 38			
07	282	23.6		33.8	280	08.2	3.6	S 24	43.7	9.6	60.8	30		19 05		19 31		20 03			
08	297	23.4		33.3	294	30.8	3.7	S 24	34.1	9.7	60.8	35		19 16		19 45		20 20			
S A O R	09	312	23.2	..	32.8	308	53.5	3.9	S 24	24.4	9.8	60.8	40		19 29		20 00		20 39		
	10	327	23.0		32.3	323	16.4	4.0	S 24	14.6	10.1	60.7	45		19 44		20 19		21 05		
	11	342	22.8		31.8	337	39.4	4.1	S 24	04.5	10.2	60.7	S 50		20 03		20 44		21 41		
	12	357	22.6	S 20	31.2	352	02.5	4.3	S 23	54.3	10.3	60.7	52		20 12		20 57		22 00		
	13	12	22.4		30.7	6	25.8	4.4	S 23	44.0	10.5	60.7	54		20 22		21 11		22 25		
D A Y	14	27	22.2		30.2	20	49.2	4.5	S 23	33.5	10.7	60.7	56		20 34		21 27		23 02		
	15	42	22.0	..	29.7	35	12.7	4.6	S 23	22.8	10.8	60.6	58		20 47		21 48		///		
	16	57	21.8		29.2	49	36.3	4.8	S 23	12.0	11.0	60.6	S 60		21 03		22 15		///		
	17	72	21.6		28.7	64	00.1	4.9	S 23	01.0	11.1	60.6	Day		Eqn. of Time		Mer. Pass.		Mer. Pass.		
	18	87	21.4	S 20	28.2	78	24.0	5.1	S 22	49.9	11.3	60.6	00h		12h		Upper		Lower		
19	102	21.2		27.6	92	48.1	5.2	S 22	38.6	11.4	60.6	m s		m s		h m		h m			
20	117	21.0		27.1	107	12.3	5.3	S 22	27.2	11.6	60.5	09 39		09 50		12 10		10 22			
21	132	20.8	..	26.6	121	36.6	5.4	S 22	15.6	11.7	60.5	10 00		10 10		12 10		11 29			
22	147	20.6		26.1	136	01.0	5.6	S 22	03.9	11.8	60.5	10 20		10 29		12 10		12 33			
23	162	20.4		25.6	150	25.6	5.7	S 21	52.1	12.0	60.5	18		17		18		19			
S.D. 16.3		d	0.5	S.D. 16.6		16.6	16.5														

G.M.T.		ARIES		VENUS -4.0		MARS +1.2		JUPITER -1.8		SATURN +0.8		STARS		
		G.H.A.	G.H.A. Dec.	G.H.A. Dec.	G.H.A. Dec.	G.H.A. Dec.	G.H.A. Dec.	G.H.A. Dec.	Name	S.H.A.	Dec.			
SUNDAY	19 00	118 12.6	131 22.8 S 6 03.9	258 59.9 S 13 53.9	292 06.3 S 1 08.0	99 20.3 N 5 19.9	Acamar	315 43.5	S 40 25.8					
	01	133 15.1	146 22.9 02.7	274 01.0 54.3	307 08.7 08.0	114 22.6 19.9	Achernar	335 51.4	S 57 23.9					
	02	148 17.5	161 23.0 01.4	289 02.1 54.6	322 11.2 08.0	129 24.9 20.0	Acrux	173 47.0	S 62 55.4					
	03	163 20.0	176 23.1 00.2	304 03.3 55.2	337 13.6 08.0	144 27.3 20.0	Adhara	255 38.5	S 28 55.7					
	04	178 22.5	191 23.2 5 59.0	319 04.4 55.6	352 16.1 08.0	159 29.6 20.1	Aldebaran	291 27.7	N 16 27.0					
	05	193 24.9	206 23.3 57.7	334 05.5 56.0	7 18.5 08.0	174 32.0 20.2								
	06	208 27.4	221 23.4 S 5 56.5	349 06.7 S 13 56.5	22 21.0 S 1 07.9	189 34.3 N 5 20.2	Alioth	166 49.6	N 56 07.3					
	07	223 29.8	236 23.4 55.3	4 07.8 56.9	37 23.4 07.9	204 36.7 20.3	Alkaid	153 25.0	N 49 27.7					
	08	238 32.3	251 23.5 54.0	19 09.0 57.3	52 25.9 07.9	219 39.0 20.3	Al Na'ir	28 25.9	S 47 06.1					
	09	253 34.8	266 23.6 52.8	34 10.1 57.7	67 28.3 07.9	234 41.4 20.4	Alnilam	276 20.1	S 1 13.3					
	10	268 37.2	281 23.7 51.6	49 11.2 58.2	82 30.8 07.9	249 43.7 20.5	Alphard	218 28.7	S 8 31.4					
	11	283 39.7	296 23.8 50.3	64 12.4 58.6	97 33.2 07.9	264 46.1 20.5								
	12	298 42.2	311 23.9 S 5 49.1	79 13.5 S 13 59.0	112 35.7 S 1 07.9	279 48.4 N 5 20.6	Alphecca	126 39.5	N 26 48.8					
	13	313 44.6	326 24.0 47.9	94 14.6 59.4	127 38.1 07.9	294 50.6 20.6	Alpheratz	358 28.5	N 28 55.3					
	14	328 47.1	341 24.1 46.6	109 15.8 13 59.8	142 40.6 07.9	309 53.1 20.7	Altair	62 41.3	N 8 46.9					
	15	343 49.6	356 24.2 45.4	124 16.9 14 00.3	157 43.0 07.9	324 55.5 20.8	Ankaa	353 48.7	S 42 28.6					
	16	358 52.0	11 24.3 44.2	139 18.0 00.7	172 45.5 07.9	339 57.8 20.8	Antares	113 07.7	S 26 22.0					
	17	13 54.5	26 24.4 42.9	154 19.2 01.1	187 48.0 07.9	355 00.2 20.9								
	18	28 57.0	41 24.5 S 5 41.7	169 20.3 S 14 01.5	202 50.4 S 1 07.9	10 02.5 N 5 20.9	Arcturus	146 26.3	N 19 00.3					
	19	43 59.4	56 24.6 40.5	184 21.4 02.0	217 52.9 07.8	25 04.9 21.0	Atria	108 40.2	S 68 58.3					
	20	59 01.9	71 24.6 39.2	199 22.6 02.4	232 55.3 07.8	40 07.2 21.0	Avior	234 31.3	S 59 24.4					
	21	74 04.3	86 24.7 38.0	214 23.7 02.8	247 57.8 07.8	55 09.6 21.1	Bellatrix	279 07.7	N 6 19.5					
	22	89 06.8	101 24.8 36.7	229 24.9 03.2	263 00.2 07.8	70 11.9 21.2	Betelgeuse	271 37.3	N 7 24.3					
	23	104 09.3	116 24.9 35.5	244 26.0 03.7	278 02.7 07.8	85 14.2 21.2								
MONDAY	20 00	119 11.7	131 25.0 S 5 34.3	259 27.1 S 14 04.1	293 05.1 S 1 07.8	100 10.6 N 5 21.3	Canopus	264 10.5	S 50 40.7					
	01	134 14.2	146 25.1 33.0	274 28.3 04.5	308 07.6 07.8	115 18.9 21.3	Capella	281 23.6	N 45 58.3					
	02	149 16.7	161 25.2 31.8	289 29.4 04.9	323 10.0 07.8	130 21.3 21.4	Deneb	49 54.9	N 45 10.0					
	03	164 19.1	176 25.4 30.6	304 30.5 05.3	338 12.5 07.8	145 23.6 21.5	Denebola	183 07.6	N 14 44.6					
	04	179 21.6	191 25.5 29.3	319 31.7 05.8	353 15.0 07.8	160 26.0 21.5	Diphda	349 29.5	S 18 09.5					
	05	194 24.1	206 25.6 28.1	334 32.8 06.2	8 17.4 07.8	175 28.3 21.6								
	06	209 26.5	221 25.7 S 5 26.9	349 34.0 S 14 06.6	23 19.9 S 1 07.7	190 30.7 N 5 21.6	Dubhe	194 31.8	N 61 54.9					
	07	224 29.0	236 25.8 25.6	4 35.1 07.0	38 22.3 07.7	205 33.0 21.7	Elmath	278 54.7	N 28 35.2					
	08	239 31.4	251 25.9 24.4	19 36.2 07.4	53 24.8 07.7	220 35.4 21.8	Eltanin	91 02.2	N 51 29.2					
	09	254 33.9	266 26.0 23.1	34 37.4 07.9	68 27.2 07.7	235 37.7 21.8	Enif	34 20.3	N 9 43.4					
	10	269 36.4	281 26.1 21.9	49 38.5 08.3	83 29.7 07.7	250 40.0 21.9	Fomalhaut	16 01.0	S 29 47.4					
	11	284 38.8	296 26.2 20.7	64 39.6 08.7	98 32.2 07.7	265 42.4 21.9								
	12	299 41.3	311 26.3 S 5 19.4	79 40.8 S 14 09.1	113 34.6 S 1 07.7	280 44.7 N 5 22.0	Gacrux	172 38.4	S 56 56.2					
	13	314 43.8	326 26.4 18.2	94 41.9 09.5	128 37.1 07.7	295 47.1 22.1	Gienah	176 26.7	S 17 22.2					
	14	329 46.2	341 26.5 17.0	109 43.1 10.0	143 39.5 07.7	310 49.4 22.1	Hadar	149 35.9	S 60 13.3					
	15	344 48.7	356 26.6 15.7	124 44.2 10.4	158 42.0 07.7	325 51.8 22.2	Hamal	328 38.7	N 23 19.1					
	16	359 51.2	11 26.8 14.5	139 45.3 10.8	173 44.5 07.6	340 54.1 22.3	Kaus Aust.	84 28.6	S 34 24.2					
	17	14 53.6	26 26.9 13.2	154 46.5 11.2	188 46.9 07.6	355 56.4 22.3								
	18	29 56.1	41 27.0 S 5 12.0	169 47.6 S 14 11.6	203 49.4 S 1 07.6	10 58.8 N 5 22.4	Kochab	137 18.3	N 74 16.5					
	19	44 58.5	56 27.1 10.8	184 48.7 12.0	218 51.9 07.6	26 01.1 22.4	Markab	14 12.0	N 15 02.3					
	20	60 01.0	71 27.2 09.5	199 49.9 12.5	233 54.3 07.6	41 03.5 22.5	Menkar	314 50.0	N 3 58.2					
	21	75 03.5	86 27.3 08.3	214 51.0 12.9	248 56.8 07.6	56 05.8 22.6	Menkent	148 47.3	S 36 13.0					
	22	90 05.9	101 27.5 07.1	229 52.2 13.3	263 59.2 07.6	71 08.2 22.6	Miaplacidus	221 46.4	S 69 35.2					
	23	105 08.4	116 27.6 05.8	244 53.3 13.7	279 01.7 07.6	86 10.5 22.7								
TUESDAY	21 00	120 10.9	131 27.7 S 5 04.6	259 54.4 S 14 14.1	294 04.2 S 1 07.6	101 12.9 N 5 22.7	Mirfak	309 28.4	N 49 45.5					
	01	135 13.3	146 27.8 03.3	274 55.6 14.6	309 06.6 07.5	116 15.2 22.8	Nunki	76 40.1	S 26 20.4					
	02	150 15.8	161 27.9 02.1	289 56.7 15.0	324 09.1 07.5	131 17.5 22.9	Peacock	54 12.3	S 56 50.3					
	03	165 18.3	176 28.1 5 00.9	304 57.9 15.4	339 11.6 07.5	146 19.9 22.9	Pollux	244 08.2	N 28 06.2					
	04	180 20.7	191 28.2 4 59.6	319 59.0 15.8	354 14.0 07.5	161 22.2 23.0	Procyon	245 34.4	N 5 18.4					
	05	195 23.2	206 28.3 58.4	335 00.1 16.2	9 16.5 07.5	176 24.6 23.0								
	06	210 25.7	221 28.4 S 4 57.2	350 01.3 S 14 16.6	24 18.9 S 1 07.5	191 26.9 N 5 23.1	Rasalhague	96 37.8	N 12 34.6					
	07	225 28.1	236 28.5 55.9	5 02.4 17.1	39 21.4 07.5	206 29.2 23.2	Regulus	208 18.8	N 12 07.1					
	08	240 30.6	251 28.7 54.7	20 03.5 17.5	54 23.9 07.5	221 31.6 23.2	Rigel	281 44.0	S 8 14.1					
	09	255 33.0	266 28.8 53.4	35 04.7 17.9	69 26.3 07.4	236 33.9 23.3	Rigel Kent.	140 37.9	S 60 42.2					
	10	270 35.5	281 28.9 52.2	50 05.8 18.3	84 28.8 07.4	251 36.3 23.4	Sabik	102 51.3	S 15 41.4					
	11	285 38.0	296 29.1 51.0	65 07.0 18.7	99 31.3 07.4	266 38.6 23.4								
	12	300 40.4	311 29.2 S 4 49.7	80 08.1 S 14 19.1	114 33.7 S 1 07.4	281 40.9 N 5 23.5	Schedar	350 19.3	N 56 22.3					
	13	315 42.9	326 29.3 48.5	95 09.2 19.5	129 36.2 07.4	296 43.3 23.5	Shaula	97 07.8	S 37 05.0					
	14	330 45.4	341 29.4 47.2	110 10.4 20.0	144 38.7 07.4	311 45.6 23.6	Sirius	259 03.0	S 16 40.3					
	15	345 47.8	356 29.6 46.0	125 11.5 20.4	159 41.1 07.4	326 48.0 23.7	Spica	159 06.6	N 11 00.1					
	16	0 50.3	11 29.7 44.8	140 12.7 20.8	174 43.6 07.3	341 50.3 23.7	Suhail	223 16.8	S 43 18.3					
	17	15 52.8	26 29.8 43.5	155 13.8 21.2	189 46.1 07.3	356 52.6 23.8								
	18	30 55.2	41 30.0 S 4 42.3	170 14.9 S 14 21.6	204 48.5 S 1 07.3	11 55.0 N 5 23.9	Vega	81 02.1	N 38 45.0					
	19	45 57.7	56 30.1 41.0	185 16.1 22.0	219 51.0 07.3	26 57.3 23.9	Zuben'ubi	137 42.7	S 15 54.9					
	20	61 00.2	71 30.2 39.8	200 17.2 22.4	234 53.5 07.3	41 59.7 24.0								
	21	76 02.6	86 30.4 38.6	215 18.4 22.9	249 56.0 07.3	57 02.0 24.0								
	22	91 05.1	101 30.5 37.3	230 19.5 23.3	264 58.4 07.3	72 04.3 24.1								
	23	106 07.5	116 30.6 36.1	245 20.7 23.7	280 00.9 07.2	87 06.7 24.2								
Mer. Pass. 16 00-6		v 0.1	d 1.2	v 1.1	d 0.4	v 2.5	d 0.0	v 2.3	d 0.1					
										S.H.A.	Mer. Pass.			
										12 13.3	15 14			
										140 15.4	6 42			
										173 53.4	4 27			
										341 04.9	17 16			

G.M.T.	SUN				MOON				Lat.	Twilight		Sun-rise	Moonrise					
	G.H.A.		Dec.	d	H.P.	Naut.	Civil	19		20	21		22					
	d	h																
19 00	177	20-2	25-1	164	50-3	5-9	21	40-1	12-4	60-4	N 70	07 35	09 03	11 07	12 21	11 56	10 29	10 01
01	192	20-4	24-5	177	15-2	6-0	21	28-1	12-3	60-4	68	07 25	08 43	10 11	11 29	10 47	10 21	10 00
02	207	19-5	24-6	193	4-2	6-1	21	15-8	12-3	60-4	66	07 16	08 24	09 38	10 57	10 31	10 13	09 58
03	222	19-6	23-9	208	05-3	6-3	21	03-3	12-3	60-4	64	07 08	08 16	09 14	10 33	10 18	10 07	09 57
04	237	19-5	23-9	222	30-4	6-4	21	51-9	12-6	60-3	62	07 01	07 59	08 55	10 13	10 07	10 02	09 57
05	252	19-3	22-4	236	56-0	6-5	20	38-4	12-7	60-3	60	06 55	07 48	08 39	09 57	09 58	09 57	09 56
06	267	19-1	21-9	251	21-5	6-7	20	25-7	12-9	60-3	N 58	06 50	07 40	08 27	09 44	09 49	09 53	09 55
07	282	18-9	21-9	265	47-2	6-8	20	12-6	12-9	60-3	56	06 45	07 32	08 15	09 32	09 42	09 49	09 54
08	297	18-7	20-9	280	13-6	7-0	19	59-9	13-1	60-2	54	06 41	07 25	08 05	09 22	09 36	09 46	09 54
S 09	312	18-5	20-4	294	39-0	7-1	19	46-8	13-2	60-2	52	06 36	07 18	07 56	09 12	09 35	09 43	09 53
U 10	327	18-3	19-8	309	51-1	7-2	19	33-4	13-3	60-2	50	06 32	07 12	07 49	09 04	09 24	09 40	09 53
N 11	342	18-1	19-3	323	31-3	7-4	19	20-3	13-4	60-1	45	06 25	06 59	07 32	08 46	09 13	09 34	09 52
12	357	17-9	S 20	337	57-7	7-5	S 19	06-9	13-4	60-1	N 40	06 15	06 48	07 18	08 32	09 03	09 28	09 51
13	12	17-7	18-2	352	24-2	7-6	18	53-5	13-6	60-1	35	06 06	06 39	07 06	08 20	08 54	09 24	09 50
14	27	17-5	17-7	6	50-6	7-7	18	39-9	13-7	60-1	30	06 01	06 30	06 56	08 09	08 47	09 20	09 50
15	42	17-3	17-2	21	17-5	7-9	18	26-2	13-8	60-0	20	05 47	06 14	06 38	07 50	08 34	09 13	09 48
16	57	17-2	16-7	35	44-4	8-0	18	12-4	13-9	60-0	N 10	05 34	06 00	06 22	07 34	08 23	09 07	09 49
17	72	17-0	16-1	50	11-5	8-1	17	58-5	14-0	60-0	0	05 20	05 45	06 07	07 18	08 12	09 01	09 47
18	87	16-8	S 20	64	38-6	8-3	S 17	44-5	14-1	59-9	S 10	05 04	05 30	05 52	07 03	08 02	08 56	09 46
19	102	16-6	15-1	79	05-9	8-4	17	30-4	14-1	59-9	20	04 44	05 12	05 36	06 46	07 56	08 49	09 45
20	117	16-4	14-5	93	33-3	8-6	17	16-3	14-3	59-9	30	04 19	04 51	05 18	06 27	07 37	08 42	09 44
21	132	16-2	14-0	108	00-9	8-8	17	02-0	14-3	59-8	35	04 04	04 38	05 07	06 16	07 29	08 38	09 43
22	147	16-0	13-5	122	28-5	8-6	16	47-7	14-4	59-8	40	03 44	04 23	04 54	06 03	07 21	08 34	09 43
23	162	15-8	12-9	136	56-3	9-0	16	33-3	14-5	59-8	45	03 19	04 04	04 39	05 47	07 10	08 28	09 42
20 00	177	15-6	S 20	151	24-3	9-0	S 16	18-8	14-6	59-7	S 50	02 45	03 46	04 21	05 28	06 58	08 22	09 41
01	192	15-5	11-9	165	52-3	9-2	16	04-2	14-6	59-7	52	02 26	03 28	04 12	05 19	06 52	08 19	09 41
02	207	15-3	11-3	180	20-5	9-3	15	49-6	14-7	59-7	54	02 03	03 15	04 02	05 09	06 45	08 16	09 40
03	222	15-1	10-8	194	48-6	9-4	15	34-9	14-8	59-6	56	01 36	02 58	03 51	04 58	06 38	08 12	09 40
04	237	14-9	10-2	209	17-2	9-6	15	20-1	14-8	59-6	58		02 39	03 38	04 45	06 30	08 08	09 39
05	252	14-7	09-7	223	45-8	9-6	15	05-3	14-9	59-6	S 60		02 13	03 23	04 29	06 21	08 03	09 38
06	267	14-5	S 20	238	14-4	9-8	S 14	50-4	15-0	59-5								
07	282	14-3	08-6	252	43-2	9-9	14	35-4	15-1	59-5								
08	297	14-2	08-1	267	12-1	10-0	14	20-3	15-1	59-5								
09	312	14-0	07-5	281	41-1	10-2	14	05-2	15-1	59-4								
U 10	327	13-8	07-0	296	10-3	10-2	13	50-1	15-2	59-4								
N 11	342	13-6	06-5	310	39-5	10-4	13	34-9	15-3	59-4								
12	357	13-4	S 20	325	08-9	10-5	S 13	19-6	15-3	59-3	N 70	13 17	15 20	16 48	15 05	18 10	20 27	22 31
13	12	13-2	05-4	339	38-4	10-6	13	04-3	15-4	59-3	68	14 12	15 42	16 58	15 55	18 28	20 33	22 29
14	27	13-1	04-8	354	08-0	10-7	12	48-9	15-4	59-3	66	14 43	15 59	17 07	16 27	18 41	20 38	22 27
15	42	12-9	04-3	8	37-7	10-8	12	33-3	15-5	59-2	64	15 09	16 12	17 15	16 49	18 53	20 42	22 25
16	57	12-7	03-7	23	07-5	10-9	12	18-0	15-5	59-2	62	15 28	16 24	17 21	17 08	19 02	20 46	22 24
17	72	12-5	03-2	37	37-4	11-0	12	02-5	15-5	59-1	60	15 43	16 34	17 27	17 22	19 10	20 49	22 22
18	87	12-3	S 20	52	07-4	11-1	S 11	47-0	15-6	59-1	N 58	15 56	16 43	17 33	17 35	19 17	20 52	22 21
19	102	12-1	02-1	66	37-5	11-3	11	31-4	15-6	59-1	56	16 07	16 51	17 38	17 46	19 23	20 54	22 20
20	117	12-0	01-6	81	07-8	11-3	11	15-8	15-7	59-0	54	16 17	16 58	17 42	17 55	19 29	20 56	22 19
21	132	11-8	01-0	95	38-1	11-4	11	00-1	15-7	59-0	52	16 26	17 05	17 46	18 04	19 34	20 58	22 18
22	147	11-6	00-5	110	08-5	11-6	10	44-4	15-7	58-9	50	16 34	17 10	17 50	18 11	19 38	21 06	22 18
23	162	11-4	19 59-9	124	39-1	11-6	10	28-7	15-8	58-9	45	16 51	17 23	17 59	18 27	19 48	21 04	22 16
21 00	177	11-2	S 19	139	09-7	11-7	S 10	12-9	15-8	58-9	N 40	17 05	17 34	18 07	18 40	19 56	21 07	22 15
01	192	11-1	58-6	153	40-4	11-8	9	57-1	15-8	58-8	35	17 16	17 44	18 14	18 51	20 03	21 10	22 14
02	207	10-9	58-2	168	11-2	12-0	9	41-3	15-9	58-6	30	17 27	17 52	18 21	19 01	20 09	21 12	22 13
03	222	10-7	57-7	182	42-2	12-0	9	25-4	15-8	58-8	20	17 44	18 08	18 35	19 17	20 19	21 16	22 11
04	237	10-5	57-1	197	13-2	12-1	9	09-6	15-9	58-7	N 10	18 06	18 22	18 48	19 31	20 28	21 20	22 09
05	252	10-4	56-6	211	44-3	12-1	8	53-7	16-0	58-7	0	18 15	18 37	19 02	19 45	20 36	21 23	22 08
06	267	10-2	S 19	226	15-4	12-3	S 8	37-7	15-9	58-6	S 10	18 30	18 52	19 18	19 58	20 44	21 27	22 06
07	282	10-0	55-5	240	46-7	12-4	8	21-8	16-0	58-6	20	18 46	19 09	19 38	20 11	20 53	21 30	22 05
08	297	09-8	54-9	255	18-1	12-4	8	05-8	15-9	58-6	30	19 04	19 30	20 02	20 27	21 03	21 34	22 03
09	312	09-6	54-4	269	49-5	12-6	7	49-9	16-0	58-5	35	19 15	19 43	20 18	20 36	21 08	21 36	22 02
U 10	327	09-5	53-8	284	21-1	12-6	7	33-9	16-0	58-5	40	19 27	19 58	20 37	20 46	21 14	21 39	22 01
N 11	342	09-3	53-2	298	52-7	12-7	7	17-9	16-0	58-5	45	19 42	20 17	21 02	20 58	21 22	21 41	21 59
12	357	09-1	S 19	313	24-4	12-7	S 7	01-9	16-1	58-4	S 50	20 00	20 41	21 36	21 13	21 30	21 45	21 58
13	12	08-9	52-1	327	56-1	12-9	6	45-8	16-0	58-4	52	20 09	20 52	21 54	21 19	21 34	21 46	21 57
14	27	08-8	51-6	342	28-0	12-9	6	29-8	16-0	58-3	54	20 19	21 06	22 17	21 27	21 39	21 48	21 56
15	42	08-6	51-0	356	59-9	13-0	6	13-8	16-1	58-3	56	20 30	21 22	22 48	21 35	21 44	21 50	21 55
16	57	08-4	50-4	11	31-9	13-1	5	57-7	16-1	58-3	58	20 42	21 41	24 07	21 44	21 49	21 52	21 54
17	72	08-2	49-9	26	04-0	13-1	5	41-6	16-0	58-2	S 60	20 57	22 06		21 55	21 55	21 54	21 53
18	87	08-1	S 19	40	36-1	13-3	S 5	25-6	16-1	58-2								
19	102	07-9	48-6	55	08-4	13-2	5	09-5	16-0	58-1								
20	117	07-7	48-2	69	40-6	13-4	4	53-5	16-1	58-1								
21	132	07-6	47-6	84	13-5	13-4	4	37-4	16-1	58-1								
22	147	07-4	47-1	98	45-4	13-5	4	21-3	16-0	58-0								
23	162	07-2	46-5	113	17-9	13-6	4	05-3	16-1	58-0								
	S.D.	16-3	d 0-5	S.D.	16-4	16-2	15-9											
											Day	Eqn. of Time 12 ^h	Mer. Pass.		Mer. Upper	Pass. Lower	Age	Phase
											19	10 39						

		ARIES		VENUS -4.0		MARS +1.2		JUPITER -1.8		SATURN +0.8		STARS													
G.M.T.		G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.										
d	h	°	'	°	°	'	°	'	°	'	°	'		°	'										
22 WEDNESDAY	00	121	10.0	131	30.8	S 4	34.8	260	21.8	S 14	24.1	295	03.4	S 1	07.2	102	09.0	N 5	24.2	Acamar	315	43.5	S	40	25.8
	01	136	12.5	146	30.9		33.6	275	22.9		24.5	310	05.8		07.2	117	11.3		24.3	Achernar	335	51.4	S	57	23.9
	02	151	14.9	161	31.1		32.4	290	24.1		24.9	325	08.3		07.2	132	13.7		24.4	Acruz	173	46.9	S	62	55.4
	03	166	17.4	176	31.2		31.1	305	25.2		25.3	340	10.8		07.2	147	16.0		24.4	Adhara	255	38.5	S	28	55.7
	04	181	19.9	191	31.3		29.9	320	26.4		25.8	355	13.2		07.2	162	18.4		24.5	Aldebaran	291	27.7	N	16	27.0
	05	196	22.3	206	31.5		28.6	335	27.5		26.2	10	15.7		07.2	177	20.7		24.5						
	06	211	24.8	221	31.6	S 4	27.4	350	28.6	S 14	26.6	25	18.2	S 1	07.1	192	23.0	N 5	24.6	Alioth	166	49.5	N	56	07.3
	07	226	27.3	236	31.8		26.2	5	29.8		27.0	40	20.7		07.1	207	25.4		24.7	Alkaid	153	25.0	N	49	27.7
	08	241	29.7	251	31.9		24.9	20	30.9		27.4	55	23.1		07.1	222	27.7		24.7	Al Na'ir	28	25.9	S	47	06.9
	09	256	32.2	266	32.1		23.7	35	32.1		27.8	70	25.6		07.1	237	30.0		24.8	Alnilam	276	20.1	S	1	13.1
	10	271	34.7	281	32.2		22.4	50	33.2		28.2	85	28.1		07.1	252	32.4		24.9	Alphard	218	28.7	S	8	31.4
	11	286	37.1	296	32.4		21.2	65	34.4		28.6	100	30.6		07.1	267	34.7		24.9						
	12	301	39.6	311	32.5	S 4	19.9	80	35.5	S 14	29.0	115	33.0	S 1	07.0	282	37.1	N 5	25.0	Alphecca	126	39.5	N	26	48.7
	13	316	42.0	326	32.7		18.7	95	36.6		29.5	130	35.5		07.0	297	39.4		25.0	Alpheratz	358	18.5	N	28	55.3
	14	331	44.5	341	32.8		17.5	110	37.8		29.9	145	38.0		07.0	312	41.7		25.1	Altair	62	41.3	N	8	46.9
	15	346	47.0	356	33.0		16.2	125	38.9		30.3	160	40.5		07.0	327	44.1		25.2	Ankaa	353	48.7	S	42	28.6
	16	1	49.4	11	33.1		15.0	140	40.1		30.7	175	42.9		07.0	342	46.4		25.2	Antares	113	07.7	S	26	22.0
	17	16	51.9	26	33.3		13.7	155	41.2		31.1	190	45.4		07.0	357	48.7		25.3						
	18	31	54.4	41	33.4	S 4	12.5	170	42.4	S 14	31.5	205	47.9	S 1	06.9	12	51.1	N 5	25.4	Arcturus	146	26.2	N	19	20.3
	19	46	56.8	56	33.6		11.3	185	43.5		31.9	220	50.4		06.9	27	53.4		25.4	Atria	108	40.1	S	68	58.3
	20	61	59.3	71	33.7		10.0	200	44.6		32.3	235	52.8		06.9	42	55.7		25.5	Avior	234	31.3	S	59	24.5
	21	77	01.8	86	33.9		08.8	215	45.8		32.7	250	55.3		06.9	57	58.1		25.6	Bellatrix	279	07.7	N	6	19.5
	22	92	04.2	101	34.0		07.5	230	46.9		33.1	265	57.8		06.9	73	00.4		25.6	Betelgeuse	271	37.3	N	7	24.2
	23	107	06.7	116	34.2		06.3	245	48.1		33.5	281	00.3		06.8	88	02.7		25.7						
23 THURSDAY	00	122	09.2	131	34.3	S 4	05.0	260	49.2	S 14	34.0	296	02.7	S 1	06.8	103	05.1	N 5	25.8	Canopus	264	10.6	S	52	40.7
	01	137	11.6	146	34.5		03.8	275	50.4		34.4	311	05.2		06.8	118	07.4		25.8	Capella	281	23.6	N	45	58.3
	02	152	14.1	161	34.7		02.6	290	51.5		34.8	326	07.7		06.8	133	09.7		25.9	Deneb	49	54.9	N	45	10.0
	03	167	16.5	176	34.8		01.3	305	52.7		35.2	341	10.2		06.8	148	12.1		25.9	Denebola	183	07.5	N	14	44.6
	04	182	19.0	191	35.0		4 00.1	320	53.8		35.6	356	12.7		06.7	163	14.4		26.0	Diphda	349	29.5	S	18	09.5
	05	197	21.5	206	35.1		3 58.8	335	54.9		36.0	11	15.1		06.7	178	16.8		26.1						
	06	212	23.9	221	35.3	S 3	57.6	350	56.1	S 14	36.4	26	17.6	S 1	06.7	193	19.1	N 5	26.1	Dubhe	194	31.8	N	61	54.9
	07	227	26.4	236	35.5		56.4	5	57.2		36.8	41	20.1		06.7	208	21.4		26.2	Elmath	278	54.7	N	28	35.2
	08	242	28.9	251	35.6		55.1	20	58.4		37.2	56	22.6		06.7	223	23.8		26.3	Eltanin	91	02.2	N	51	29.2
	09	257	31.3	266	35.8		53.9	35	59.5		37.6	71	25.1		06.7	238	26.1		26.3	Enif	34	20.3	N	9	43.8
	10	272	33.8	281	35.9		52.6	51	00.7		38.0	86	27.5		06.6	253	28.4		26.4	Fomalhaut	16	01.0	S	29	47.4
	11	287	36.3	296	36.1		51.4	66	01.8		38.4	101	30.0		06.6	268	30.7		26.5						
	12	302	38.7	311	36.3	S 3	50.1	81	03.0	S 14	38.8	116	32.5	S 1	06.6	283	33.1	N 5	26.5	Gacrux	172	38.4	S	56	56.2
	13	317	41.2	326	36.4		48.9	96	04.1		39.3	131	35.0		06.6	298	35.4		26.6	Gienah	176	26.7	S	17	22.2
	14	332	43.6	341	36.6		47.7	111	05.2		39.7	146	37.5		06.6	313	37.7		26.7	Hadar	149	35.9	S	60	13.3
	15	347	46.1	356	36.8		46.4	126	06.4		40.1	161	39.9		06.5	328	40.1		26.7	Hamal	328	38.7	N	23	19.1
	16	2	48.6	11	37.0		45.2	141	07.5		40.5	176	42.4		06.5	343	42.4		26.8	Kaus Aust.	84	28.6	S	34	24.2
	17	17	51.0	26	37.1		43.9	156	08.7		40.9	191	44.9		06.5	358	44.7		26.9						
	18	32	53.5	41	37.3	S 3	42.7	171	09.8	S 14	41.3	206	47.4	S 1	06.5	13	47.1	N 5	26.9	Kochab	137	18.2	N	74	16.5
	19	47	56.0	56	37.5		41.4	186	11.0		41.7	221	49.9		06.4	28	49.4		27.0	Markab	14	12.0	N	15	02.3
	20	62	58.4	71	37.6		40.2	201	12.1		42.1	236	52.4		06.4	43	51.7		27.0	Menkar	314	50.0	N	3	58.2
	21	78	00.9	86	37.8		39.0	216	13.3		42.5	251	54.8		06.4	58	54.1		27.1	Menkent	148	47.3	S	36	13.1
	22	93	03.4	101	38.0		37.7	231	14.4		42.9	266	57.3		06.4	73	56.4		27.2	Miaplacidus	221	46.4	S	69	35.2
	23	108	05.8	116	38.2		36.5	246	15.5		43.3	281	59.8		06.4	88	58.7		27.2						
24 FRIDAY	00	123	08.3	131	38.3	S 3	35.2	261	16.7	S 14	43.7	297	02.3	S 1	06.3	104	01.1	N 5	27.3	Mirfak	309	28.4	N	49	45.4
	01	138	10.7	146	38.5		34.0	276	17.8		44.1	312	04.8		06.3	119	03.4		27.4	Nunki	76	40.1	S	26	20.4
	02	153	13.2	161	38.7		32.7	291	19.0		44.5	327	07.3		06.3	134	05.7		27.4	Peacock	54	12.3	S	56	50.3
	03	168	15.7	176	38.9		31.5	306	20.1		44.9	342	09.8		06.3	149	08.1		27.5	Pollux	244	08.2	N	28	06.2
	04	183	18.1	191	39.0		30.3	321	21.3		45.3	357	12.2		06.3	164	10.4		27.6	Procyon	245	34.4	N	5	18.4
	05	198	20.6	206	39.2		29.0	336	22.4		45.7	12	14.7		06.2	179	12.7		27.6						
	06	213	23.1	221	39.4	S 3	27.8	351	23.6	S 14	46.1	27	17.2	S 1	06.2	194	15.0	N 5	27.7	Rasalhague	96	37.8	N	12	34.6
	07	228	25.5	236	39.6		26.5	6	24.7		46.5	42	19.7		06.2	209	17.4		27.8	Regulus	208	18.8	N	12	07.1
	08	243	28.0	251	39.8		25.3	21	25.9		46.														

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise								
		G.H.A.	Dec.	G.H.A.	φ	Dec.	d	H.P.		Naut.	Civil		22	23	24	25					
d	h	e	r	a	i	o	i	r	o	h	m	h	m	h	m	h	m	h	m	h	m
22	00	177	07.0	S 19	45.9	127	50.5	13.6	S	3	49.2	16.0	57.9	N 70	07 28	08 53	10 42	10 01	09 34	09 05	08 26
	01	192	06.9		45.4	142	23.1	13.7		3	33.2	16.0	57.9	68	07 18	08 53	09 57	10 00	09 40	09 18	08 52
	02	207	06.7		44.8	156	55.8	13.7		3	17.2	16.1	57.9	66	07 10	08 17	09 28	09 58	09 44	09 29	09 12
	03	222	06.5		44.2	171	28.5	13.8		3	01.1	16.0	57.8	64	07 03	08 04	09 06	09 57	09 48	09 38	09 28
	04	237	06.4		43.7	186	01.3	13.8		2	45.1	16.0	57.8	62	06 57	07 53	08 48	09 57	09 51	09 46	09 41
	05	252	06.2		43.1	200	34.1	13.9		2	29.1	16.0	57.7	60	06 51	07 44	08 34	09 56	09 54	09 53	09 53
	06	267	06.0	S 19	42.5	215	07.0	14.0	S	2	13.1	16.0	57.7	N 58	06 46	07 35	08 22	09 55	09 57	09 59	10 03
	07	282	05.8		41.9	229	40.0	14.0		1	57.1	16.0	57.7	56	06 42	07 28	08 11	09 54	10 00	10 05	10 11
	08	297	05.7		41.4	244	13.0	14.0		1	41.1	15.9	57.6	54	06 37	07 21	08 01	09 54	10 02	10 10	10 19
	09	312	05.5		40.8	258	46.0	14.2		1	25.2	16.0	57.6	52	06 33	07 15	07 53	09 53	10 04	10 14	10 26
WEDNESDAY	10	327	05.3		40.2	273	19.2	14.1		1	09.2	15.9	57.5	50	06 30	07 09	07 45	09 53	10 05	10 18	10 33
	11	342	05.2		39.7	287	52.3	14.2		0	53.3	15.9	57.5	45	06 21	06 57	07 29	09 52	10 09	10 27	10 46
	12	357	05.0	S 19	39.1	302	25.5	14.3	S	0	37.4	15.9	57.5	N 40	06 14	06 47	07 16	09 51	10 13	10 34	10 58
	13	12	04.8		38.5	316	58.8	14.2		0	21.5	15.8	57.4	35	06 07	06 38	07 05	09 50	10 16	10 41	11 08
	14	27	04.7		37.9	331	32.0	14.4	S	0	05.7	15.9	57.4	30	06 00	06 29	06 55	09 50	10 18	10 46	11 16
	15	42	04.5		37.4	346	05.4	14.4	N	0	10.2	15.8	57.3	20	05 47	06 14	06 38	09 49	10 23	10 56	11 31
	16	57	04.3		36.8	0	38.8	14.4		0	26.0	15.8	57.3	N 10	05 35	06 00	06 22	09 48	10 27	11 05	11 44
	17	72	04.2		36.2	15	12.2	14.4		0	41.8	15.7	57.3	0	05 21	05 46	06 08	09 47	10 30	11 13	11 57
	18	87	04.0	S 19	35.6	29	45.6	14.5	N	0	57.5	15.8	57.2	S 10	05 05	05 32	05 54	09 46	10 34	11 22	12 09
	19	102	03.8		35.0	44	19.1	14.5		1	13.3	15.7	57.2	20	04 46	05 15	05 38	09 45	10 38	11 30	12 23
THURSDAY	20	117	03.7		34.5	58	52.6	14.6		1	29.0	15.7	57.2	30	04 22	04 54	05 20	09 44	10 43	11 41	12 38
	21	132	03.5		33.9	73	26.2	14.6		1	44.7	15.6	57.1	35	04 07	04 42	05 10	09 43	10 46	11 47	12 47
	22	147	03.3		33.3	87	59.8	14.6		2	00.3	15.7	57.1	40	03 49	04 27	04 58	09 43	10 49	11 53	12 57
	23	162	03.2		32.7	102	33.4	14.7		2	16.0	15.5	57.0	45	03 25	04 09	04 43	09 42	10 53	12 01	13 10
	00	177	03.0	S 19	32.1	117	07.1	14.6	N	2	31.5	15.6	57.0	S 50	02 52	03 46	04 26	09 41	10 57	12 11	13 25
	01	192	02.9		31.6	131	40.7	14.8		2	47.1	15.5	57.0	52	02 34	03 35	04 17	09 41	10 59	12 16	13 32
	02	207	02.7		31.0	146	14.5	14.7		3	02.6	15.5	56.9	54	02 13	03 22	04 08	09 40	11 01	12 21	13 39
	03	222	02.5		30.4	160	48.2	14.7		3	18.1	15.5	56.9	56	01 44	03 06	03 58	09 40	11 04	12 26	13 48
	04	237	02.4		29.8	175	21.9	14.8		3	33.6	15.4	56.8	58	00 53	02 48	03 45	09 39	11 06	12 32	13 58
	05	252	02.2		29.2	189	55.7	14.8		3	49.0	15.4	56.8	S 60	00 11	02 25	03 31	09 38	11 10	12 39	14 10
FRIDAY	06	267	02.0	S 19	28.6	204	29.5	14.9	N	4	04.4	15.4	56.8	Lat. Sun-set Twilight Moonset				22 23 24 25			
	07	282	01.9		28.1	219	03.4	14.8		4	19.8	15.3	56.7	h m		h m		h m		h m	
	08	297	01.7		27.5	233	37.2	14.9		4	35.1	15.2	56.7	h m		h m		h m		h m	
	09	312	01.6		26.9	248	11.1	14.9		4	50.3	15.3	56.7	h m		h m		h m		h m	
	10	327	01.4		26.3	262	45.0	14.9		5	05.6	15.2	56.6	h m		h m		h m		h m	
	11	342	01.2		25.7	277	18.9	14.9		5	20.8	15.1	56.6	h m		h m		h m		h m	
	12	357	01.1	S 19	25.1	291	52.8	14.9	N	5	35.9	15.1	56.6	N 70	13 43	15 32	16 57	22 34	24 32	00 32	02 42
	13	12	00.9		24.5	306	26.7	14.9		5	51.0	15.1	56.5	68	14 27	15 51	17 06	22 29	24 21	00 21	02 18
	14	27	00.8		23.9	321	00.6	15.0		6	06.1	15.0	56.5	66	14 57	16 07	17 15	22 27	24 12	00 12	02 00
	15	42	00.6		23.3	335	34.6	14.9		6	21.1	15.0	56.4	64	15 19	16 20	17 22	22 25	24 04	00 04	01 45
SATURDAY	16	57	00.5		22.8	350	08.5	15.0		6	36.1	14.9	56.4	62	15 36	16 31	17 28	22 24	23 58	25 33	01 33
	17	72	00.3		22.2	4	42.5	15.0		6	51.0	14.9	56.4	60	15 51	16 41	17 33	22 22	23 52	25 22	01 22
	18	87	00.1	S 19	21.6	19	16.5	15.0	N	7	05.9	14.8	56.3	N 58	16 03	16 49	17 38	22 21	23 48	25 13	01 13
	19	102	00.0		21.0	33	50.5	14.9		7	20.7	14.8	56.3	56	16 13	16 57	17 43	22 20	23 43	25 05	01 05
	20	116	59.8		20.4	48	24.4	15.0		7	35.5	14.7	56.3	54	16 23	17 03	17 47	22 19	23 39	24 58	00 58
	21	131	59.7		19.8	62	58.4	15.0		7	50.2	14.7	56.2	52	16 31	17 09	17 51	22 18	23 36	24 52	00 52
	22	146	59.5		19.2	77	32.4	15.0		8	04.9	14.6	56.2	50	16 39	17 15	17 54	22 18	23 33	24 46	00 46
	23	161	59.4		18.6	92	06.4	15.0		8	19.5	14.6	56.2	45	16 55	17 27	18 03	22 16	23 26	24 34	00 34
	00	176	59.2	S 19	18.0	106	40.4	15.0	N	8	34.1	14.5	56.1	N 40	17 08	17 37	18 10	22 15	23 20	24 24	00 24
	01	191	59.1		17.4	121	14.4	15.0		8	48.6	14.5	56.1	35	17 19	17 46	18 17	22 14	23 15	24 16	00 16
02	206	58.9		16.8	135	48.4	15.0		9	03.1	14.4	56.1	30	17 29	17 55	18 24	22 13	23 11	24 08	00 08	
03	221	58.8		16.2	150	22.4	15.0		9	17.5	14.4	56.0	20	17 46	18 10	18 36	22 11	23 03	23 55	24 48	
04	236	58.6		15.6	164	56.4	14.9		9	31.9	14.3	56.0	N 10	18 01	18 24	18 49	22 09	22 57	23 44	24 32	
05	251	58.4		15.0	179	30.3	15.0		9	46.2	14.2	56.0	0	18 15	18 37	19 03	22 08	22 51	23 34	24 18	
SUNDAY	06	266	58.3	S 19	14.4	194	04.3	15.0	N 10	00.4	14.2	55.9	S 10	18 30	18 52	19 18	22 06	22 45	23 24	24 04	
	07	281	58.1		13.8	208	38.3	14.9		10	14.6	14.1	55.9	20	18 45	19 09	19 37	22 05	22 38	23 13	23 48
	08	296	58.0		13.2	223	12.2	15.0		10	28.7	14.1	55.9	30	19 03	19 29	20 01	22 03	22 31	23 00	23 31
	09	311	57.8		12.6	237	46.2	14.9		10	42.8	14.0	55.8	35	19 13	19 42	20 16	22 02	22 27	22 53	23 21
	10	326	57.7		12.0	252	20.1	14.9		10	56.8	14.0	55.8	40	19 25	19 56	20 34	22 01	22 22	22 45	23 03

G.M.T.		ARIES		VENUS -4.1		MARS +1.2		JUPITER -1.8		SATURN +0.8		STARS				
G.H.A.		G.H.A.		Dec.		G.H.A.		Dec.		G.H.A.		Dec.		Name	S.H.A.	Dec.
d	h	°	'	°	'	°	'	°	'	°	'	°	'		°	'
SATURDAY	25 00	124 07.4	131 42.8 S	3 05.4	261 44.2 S	14 53.4	298 02.0 S	1 05.8	104 57.0 N	5 28.9	Acamar	315 43.5	S 40 25.8			
	01	139 09.9	146 43.0	04.1	276 45.4	53.8	313 04.5	05.8	119 59.3	29.0	Achernar	335 51.4	S 57 23.8			
	02	154 12.3	161 43.2	02.9	291 46.5	54.2	328 07.0	05.7	135 01.6	29.0	Acrux	173 46.9	S 62 55.5			
	03	169 14.8	176 43.4	01.7	306 47.7	54.6	343 09.5	05.7	150 03.9	29.1	Adhara	255 38.5	S 28 55.7			
	04	184 17.3	191 43.6	3 00.4	321 48.8	55.0	358 12.0	05.7	165 06.3	29.2	Aldebaran	291 27.7	N 16 27.0			
	05	199 19.7	206 43.8	2 59.2	336 50.0	55.4	13 14.5	05.7	180 08.6	29.2						
	06	214 22.2	221 44.0 S	2 57.9	351 51.1 S	14 55.8	28 17.0 S	1 05.6	195 10.9 N	5 29.3	Alioth	166 49.5	N 56 07.3			
	07	229 24.7	236 44.2	56.7	6 52.3	56.2	43 19.5	05.6	210 13.2	29.4	Alkaid	153 24.9	N 49 27.7			
	08	244 27.1	251 44.4	55.4	21 53.4	56.6	58 22.0	05.6	225 15.6	29.4	Al Na'ir	28 25.9	S 47 06.9			
	09	259 29.6	266 44.6	54.2	36 54.6	57.0	73 24.5	05.6	240 17.9	29.5	Alnilam	276 20.1	S 1 13.2			
	10	274 32.1	281 44.8	53.0	51 55.7	57.4	88 27.0	05.5	255 20.2	29.6	Alphard	218 28.7	S 8 31.4			
	11	289 34.5	296 45.0	51.7	66 56.9	57.8	103 29.5	05.5	270 22.5	29.6						
	12	304 37.0	311 45.2 S	2 50.5	81 58.0 S	14 58.2	118 32.0 S	1 05.5	285 24.9 N	5 29.7	Alphecca	126 39.4	N 26 48.7			
	13	319 39.5	326 45.4	49.2	96 59.2	58.5	133 34.5	05.5	300 27.2	29.8	Alpheratz	358 18.5	N 28 55.3			
	14	334 41.9	341 45.6	48.0	112 00.3	58.9	148 37.0	05.4	315 29.5	29.8	Altair	62 41.2	N 8 46.9			
	15	349 44.4	356 45.8	46.7	127 01.5	59.3	163 39.5	05.4	330 31.8	29.9	Ankaa	353 48.7	S 42 28.6			
	16	4 46.8	11 46.0	45.5	142 02.6	14 59.7	178 42.0	05.4	345 34.2	30.0	Antares	113 07.6	S 26 22.0			
	17	19 49.3	26 46.2	44.3	157 03.8	15 00.1	193 44.4	05.4	0 36.5	30.0						
	18	34 51.8	41 46.5 S	2 43.0	172 04.9 S	15 00.5	208 46.9 S	1 05.3	15 38.8 N	5 30.1	Arcturus	146 26.2	N 19 20.3			
	19	49 54.2	56 46.7	41.8	187 06.1	00.9	223 49.4	05.3	30 41.1	30.2	Atria	108 40.1	S 68 58.3			
	20	64 56.7	71 46.9	40.5	202 07.2	01.3	238 51.9	05.3	45 43.5	30.2	Avior	234 31.3	S 59 24.5			
	21	79 59.2	86 47.1	39.3	217 08.4	01.7	253 54.4	05.2	60 45.8	30.3	Bellatrix	279 07.7	N 6 19.5			
	22	95 01.6	101 47.3	38.0	232 09.5	02.1	268 56.9	05.2	75 48.1	30.4	Betelgeuse	271 37.3	N 7 24.2			
23	110 04.1	116 47.5	36.8	247 10.7	02.5	283 59.4	05.2	90 50.4	30.4							
SUNDAY	26 00	125 06.6	131 47.7 S	2 35.6	262 11.8 S	15 02.9	299 01.9 S	1 05.2	105 52.8 N	5 30.5	Canopus	264 10.6	S 52 40.7			
	01	140 09.0	146 47.9	34.3	277 13.0	03.3	314 04.4	05.1	120 55.1	30.6	Capella	281 23.6	N 45 58.4			
	02	155 11.5	161 48.2	33.1	292 14.1	03.7	329 06.9	05.1	135 57.4	30.7	Deneb	49 54.9	N 45 10.0			
	03	170 14.0	176 48.4	31.8	307 15.3	04.1	344 09.4	05.1	150 59.7	30.7	Denebola	183 07.5	N 14 44.6			
	04	185 16.4	191 48.6	30.6	322 16.4	04.5	359 11.9	05.0	166 02.0	30.8	Diphda	349 29.5	S 18 09.5			
	05	200 18.9	206 48.8	29.3	337 17.6	04.9	14 14.4	05.0	181 04.4	30.9						
	06	215 21.3	221 49.0 S	2 28.1	352 18.7 S	15 05.3	29 16.9 S	1 05.0	196 06.7 N	5 30.9	Dubhe	194 31.7	N 61 54.9			
	07	230 23.8	236 49.3	26.9	7 19.9	05.7	44 19.4	05.0	211 09.0	31.0	Elmath	278 54.7	N 28 35.2			
	08	245 26.3	251 49.5	25.6	22 21.0	06.1	59 21.9	04.9	226 11.3	31.1	Eltanin	91 02.1	N 51 29.2			
	09	260 28.7	266 49.7	24.4	37 22.2	06.5	74 24.5	04.9	241 13.7	31.1	Enif	34 20.3	N 9 43.8			
	10	275 31.2	281 49.9	23.1	52 23.4	06.9	89 27.0	04.9	256 16.0	31.2	Fomalhaut	16 01.0	S 29 47.4			
	11	290 33.7	296 50.1	21.9	67 24.5	07.3	104 29.5	04.8	271 18.3	31.3						
	12	305 36.1	311 50.4 S	2 20.6	82 25.7 S	15 07.6	119 32.0 S	1 04.8	286 20.6 N	5 31.3	Gacrux	172 38.4	S 56 56.2			
	13	320 38.6	326 50.6	19.4	97 26.8	08.0	134 34.5	04.8	301 22.9	31.4	Gienah	176 26.7	S 17 22.2			
	14	335 41.1	341 50.8	18.2	112 28.0	08.4	149 37.0	04.8	316 25.3	31.5	Hadar	149 35.8	S 60 13.3			
	15	350 43.5	356 51.0	16.9	127 29.1	08.8	164 39.5	04.7	331 27.6	31.5	Hamal	328 38.7	N 23 19.1			
	16	5 46.0	11 51.3	15.7	142 30.3	09.2	179 42.0	04.7	346 29.9	31.6	Kaus Aust.	84 28.5	S 34 24.2			
	17	20 48.5	26 51.5	14.4	157 31.4	09.6	194 44.5	04.7	1 32.2	31.7						
	18	35 50.9	41 51.7 S	2 13.2	172 32.6 S	15 10.0	209 47.0 S	1 04.6	16 34.5 N	5 31.8	Kochab	137 18.2	N 74 16.5			
	19	50 53.4	56 52.0	11.9	187 33.7	10.4	224 49.5	04.6	31 36.9	31.8	Markab	14 12.0	N 15 02.3			
	20	65 55.8	71 52.2	10.7	202 34.9	10.8	239 52.0	04.6	46 39.2	31.9	Menkar	314 50.0	N 3 58.2			
	21	80 58.3	86 52.4	09.5	217 36.0	11.2	254 54.5	04.6	61 41.5	32.0	Menkent	148 47.2	S 36 13.1			
	22	96 00.8	101 52.7	08.2	232 37.2	11.6	269 57.0	04.5	76 43.8	32.0	Miaplacidus	221 46.3	S 69 35.2			
23	111 03.2	116 52.9	07.0	247 38.4	12.0	284 59.5	04.5	91 46.1	32.1							
MONDAY	27 00	126 05.7	131 53.1 S	2 05.7	262 39.5 S	15 12.4	300 02.0 S	1 04.5	106 48.5 N	5 32.2	Mirfak	309 28.4	N 49 45.4			
	01	141 08.2	146 53.4	04.5	277 40.7	12.7	315 04.5	04.4	121 50.8	32.2	Nunki	76 40.1	S 26 20.4			
	02	156 10.6	161 53.6	03.2	292 41.8	13.1	330 07.0	04.4	136 53.1	32.3	Peacock	54 12.3	S 56 50.3			
	03	171 13.1	176 53.8	02.0	307 43.0	13.5	345 09.5	04.4	151 55.4	32.4	Pollux	244 08.2	N 28 06.2			
	04	186 15.6	191 54.1	2 00.8	322 44.1	13.9	0 12.1	04.3	166 57.7	32.4	Procyon	245 34.4	N 5 18.4			
	05	201 18.0	206 54.3	1 59.5	337 45.3	14.3	15 14.6	04.3	182 00.1	32.5						
	06	216 20.5	221 54.6 S	1 58.3	352 46.4 S	15 14.7	30 17.1 S	1 04.3	197 02.4 N	5 32.6	Rasalhague	96 37.8	N 12 34.6			
	07	231 23.0	236 54.8	57.0	7 47.6	15.1	45 19.6	04.2	212 04.7	32.7	Regulus	208 18.8	N 12 07.1			
	08	246 25.4	251 55.0	55.8	22 48.7	15.5	60 22.1	04.2	227 07.0	32.7	Rigel	281 44.0	S 8 14.1			
	09	261 27.9	266 55.3	54.6	37 49.9	15.9	75 24.6	04.2	242 09.3	32.8	Rigel Kent.	140 37.8	S 60 42.2			
	10	276 30.3	281 55.5	53.3	52 51.1	16.3	90 27.1	04.1	257 11.7	32.9	Sabik	102 51.2	S 15 41.4			
	11	291 32.8	296 55.8	52.1	67 52.2	16.6	105 29.6	04.1	272 14.0	32.9						
	12	306 35.3	311 56.0 S	1 50.8	82 53.4 S	15 17.0	120 32.1 S	1 04.1	287 16.3 N	5 33.0	Schedar	350 19.4	N 56 22.3			
	13	321 37.7	326 56.2	49.6	97 54.5	17.4	135 34.6	04.1	302 18.6	33.1	Shaula	97 07.8	S 37 05.0			
	14	336 40.2	341 56.5	48.3	112 55.7	17.8	150 37.2	04.0	317 20.9	33.1	Sirius	259 03.0	S 16 40.3			
	15	351 42.7	356 56.7	47.1	127 56.8	18.2	165 39.7	04.0	332 23.2	33.2	Spica	159 06.5	S 11 00.1			
	16	6 45.1	11 57.0	45.9	142 58.0	18.6	180 42.2	04.0	347 25.6	33.3	Suhail	223 16.8	S 43 18.3			
	17	21 47.6	26 57.2	44.6	157 59.1	19.0	195 44.7	03.9	2 27.9	33.4						
	18	36 50.1	41 57.5 S	1 43.4	173 00.3 S	15 19.4	210 47.2 S	1 03.9	17 30.2 N	5 33.4	Vega	81 02.1	N 38 44.9			
	19	51 52.5	56 57.7	42.1	188 01.5	19.8	225 49.7	03.9	32 32.5	33.5	Zuben'ubi	137 42.6	S 15 54.9			
	20	66 55.0	71 58.0	40.9	203 02.6	20.1	240 52.2	03.8	47 34.8	33.6						
	21	81 57.5	86 58.2	39.7	218 03.8	20.5	255 54.7	03.8	62 37.1	33.6						
	22	96 59.9	101 58.5	38.4	233 04.9	20.9	270 57.3	03.8	77 39.5	33.7	Venus	6 41.1	15 13			
23	112 02.4	116 58.7	37.2	248 06.1	21.3	285 59.8	03.7	92 41.8	33.8	Mars	137 05.2	6 31				
Mer. Pass. 15 37.0		v 0.2 d 1.2		v 1.2 d 0.4		v 2.5 d 0.0		v 2.3 d 0.1		S.H.A. Mer. Pass. h m						
										Jupiter 173 55.3 4 03						
										Saturn 340 46.2 16 54						

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise									
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.		Naut.	Civil		25	26	27	28						
<i>d</i>	<i>h</i>	<i>o</i>	<i>o</i>	<i>o</i>	<i>o</i>	<i>o</i>	<i>o</i>	<i>o</i>	<i>o</i>	<i>m</i>	<i>m</i>	<i>m</i>	<i>m</i>	<i>m</i>	<i>m</i>	<i>m</i>	<i>m</i>					
25	00	176	55.6	S 19	03.5	96	13.4	14.6	N 14	06.4	13.5	55.4	N 72	07 35	09 56	12 43	07 55					
	01	191	55.5		02.9	110	47.0	14.7	14	19.4	13.5	55.4	N 70	07 20	08 43	10 22	08 26					
	02	206	55.3		02.3	125	20.7	14.6	14	32.4	12.5	55.4	68	07 11	08 25	09 44	08 52	08 06				
	03	221	55.2		01.7	139	54.3	14.5	14	45.3	12.5	55.3	66	07 04	08 10	09 18	09 12	08 46	07 29			
	04	236	55.0		01.0	154	27.8	14.5	14	58.1	12.5	55.3	64	06 57	07 58	08 58	09 28	09 14	08 52			
	05	251	54.9	19	00.4	169	01.3	14.5	15	10.9	12.7	55.3	62	06 52	07 48	08 41	09 41	09 36	09 29	09 20		
	06	266	54.7	18	59.8	183	34.8	14.5	N 15	23.6	12.5	55.2	60	06 47	07 39	08 28	09 53	09 53	09 56	10 03		
	07	281	54.6		59.2	198	08.3	14.5	15	36.2	12.5	55.2	N 58	06 42	07 31	08 16	10 03	10 08	10 17	10 32		
	08	296	54.4		58.6	212	41.8	14.4	15	48.7	12.4	55.2	56	06 38	07 24	08 06	10 11	10 20	10 34	10 55		
	09	311	54.3		58.0	227	15.2	14.3	16	01.1	12.4	55.2	54	06 34	07 17	07 57	10 19	10 31	10 48	11 13		
SATURDAY	10	326	54.2		57.3	241	48.5	14.4	16	13.5	12.3	55.1	52	06 30	07 11	07 49	10 26	10 41	11 01	11 29		
	11	341	54.0		56.7	256	21.9	14.3	16	25.8	12.2	55.1	50	06 27	07 06	07 42	10 33	10 50	11 13	11 43		
	12	356	53.9	18	56.1	270	55.2	14.2	N 16	38.0	12.2	55.1	45	06 19	06 55	07 26	10 46	11 09	11 36	12 10		
	13	11	53.7		55.5	285	28.4	14.3	16	50.2	12.5	55.1	N 40	06 12	06 45	07 14	10 58	11 24	11 55	12 32		
	14	26	53.6		54.9	300	01.7	14.1	17	02.2	12.5	55.0	35	06 06	06 36	07 03	11 08	11 37	12 11	12 51		
	15	41	53.5		54.3	314	34.8	14.2	17	14.2	11.9	55.0	30	05 59	06 28	06 54	11 16	11 49	12 25	13 06		
	16	56	53.3		53.6	329	08.0	14.1	17	26.1	11.8	55.0	20	05 47	06 14	06 37	11 31	12 08	12 49	13 33		
	17	71	53.2		53.0	343	41.1	14.1	17	37.9	11.8	55.0	N 10	05 35	06 01	06 23	11 44	12 25	13 09	13 56		
	18	86	53.0	18	52.4	358	14.2	14.0	N 17	49.7	11.6	55.0	0	05 22	05 47	06 09	11 57	12 42	13 29	14 18		
	19	101	52.9		51.8	12	47.2	14.0	18	01.3	11.6	54.9	S 10	05 07	05 33	05 55	12 09	12 50	13 40	14 40		
20	116	52.8		51.1	27	20.2	13.9	18	12.9	11.5	54.9	20	04 49	05 17	05 40	12 23	13 15	14 09	15 03			
21	131	52.6		50.5	41	53.1	14.0	18	24.4	11.4	54.9	30	04 26	04 57	05 23	12 38	13 36	14 33	15 30			
22	146	52.5		49.9	56	26.1	13.8	18	35.8	11.3	54.9	35	04 11	04 45	05 13	12 47	13 47	14 47	15 46			
23	161	52.3		49.3	70	58.9	13.8	18	47.1	11.2	54.8	40	03 53	04 31	05 01	12 57	14 01	15 04	16 05			
24												45	03 30	04 14	04 48	13 10	14 17	15 24	16 28			
26	00	176	52.2	18	48.6	85	31.7	13.8	N 18	58.3	11.2	54.8	S 50	02 59	03 52	04 31	13 25	14 36	15 49	16 57		
	01	191	52.1		48.0	100	04.5	13.7	19	09.5	11.5	54.8	52	02 43	03 41	04 23	13 32	14 47	16 02	17 11		
	02	206	51.9		47.4	114	37.2	13.7	19	20.5	11.5	54.8	54	02 23	03 29	04 14	13 39	14 58	16 16	17 28		
	03	221	51.8		46.8	129	09.9	13.7	19	31.5	10.9	54.8	56	01 57	03 14	04 04	13 48	15 11	16 32	17 48		
	04	236	51.6		46.1	143	42.6	13.5	19	42.4	10.8	54.7	58	01 18	02 57	03 53	13 58	15 25	16 52	18 14		
	05	251	51.5		45.5	158	15.1	13.6	19	53.2	10.7	54.7	S 60		02 36	03 39	14 10	15 42	17 17	18 48		
	06	266	51.4	18	44.9	172	47.7	13.5	N 20	03.9	10.6	54.7	Lat.		Sun-set		Twilight		Moonset			
	07	281	51.2		44.3	187	20.2	13.4	20	14.5	10.5	54.7										
	08	296	51.1		43.6	201	52.6	13.4	20	25.0	10.4	54.7										
	09	311	51.0		43.0	216	25.0	13.4	20	35.4	10.3	54.6										
10	326	50.8		42.4	230	57.4	13.3	20	45.7	10.3	54.6											
11	341	50.7		41.7	245	29.7	13.2	20	56.0	10.1	54.6											
12	356	50.6	18	41.1	260	01.9	13.2	N 21	06.1	10.0	54.6	N 72										
13	11	50.4		40.5	274	34.1	13.2	21	16.1	10.0	54.6	N 70	14 05	15 44	17 06	02 42						
14	26	50.3		39.8	289	06.3	13.1	21	26.1	9.8	54.6	68	14 42	16 02	17 15	02 18	04 36					
15	41	50.2		39.2	303	38.4	13.0	21	35.9	9.6	54.5	66	15 08	16 16	17 22	02 00	03 57	06 52				
16	56	50.0		38.6	318	10.4	13.0	21	45.7	9.6	54.5	64	15 28	16 28	17 29	01 45	03 31	05 29				
17	71	49.9		37.9	332	42.4	12.9	21	55.3	9.6	54.5	62	15 45	16 39	17 34	01 33	03 19	04 53	06 43			
18	86	49.8	18	37.3	347	14.3	12.9	N 22	04.9	9.5	54.5	60	15 58	16 47	17 39	01 22	02 53	04 27	06 00			
19	101	49.6		36.6	1	46.2	12.9	22	14.4	9.3	54.5	N 58	16 10	16 55	17 44	01 13	02 40	04 06	05 31			
20	116	49.5		36.0	16	18.1	12.7	22	23.7	9.3	54.5	56	16 20	17 02	17 48	01 05	02 28	03 50	05 09			
21	131	49.4		35.4	30	49.8	12.8	22	33.0	9.1	54.4	54	16 29	17 08	17 52	00 58	02 17	03 36	04 51			
22	146	49.3		34.7	45	21.6	12.6	22	42.1	9.1	54.4	52	16 37	17 14	17 55	00 52	02 08	03 23	04 36			
23	161	49.1		34.1	59	53.2	12.7	22	51.2	8.9	54.4	50	16 44	17 20	17 59	00 46	02 00	03 12	04 22			
24												45	16 59	17 31	18 07	00 34	01 42	02 50	03 55			
27	00	176	49.0	18	33.5	74	24.9	12.5	N 23	00.1	8.9	54.4	N 40	17 12	17 41	18 13	00 24	01 28	02 32	03 34		
	01	191	48.9		32.8	88	56.4	12.5	23	09.0	8.7	54.4	35	17 22	17 49	18 20	00 16	01 16	02 16	03 16		
	02	206	48.7		32.2	103	27.9	12.5	23	17.7	8.6	54.4	30	17 32	17 57	18 26	00 08	01 06	02 03	03 01		
	03	221	48.6		31.5	117	59.4	12.4	23	26.3	8.6	54.4	20	17 48	18 11	18 38	24 48	00 48	01 41	02 35		
	04	236	48.5		30.9	132	30.8	12.3	23	34.9	8.4	54.4	N 10	18 03	18 25	18 50	24 32	00 32	01 22	02 13		
	05	251	48.4		30.3	147	02.1	12.3	23	43.3	8.3	54.3	0	18 16	18 38	19 03	24 18	00 18	01 04	01 52		
	06	266	48.2	18	29.6	161	33.4	12.3	N 23	51.6	8.2	54.3	S 10	18 30	18 52	19 18	24 04	00 04	00 46	01 32		
	07	281	48.1		29.0	176	04.7	12.2	23	59.8	8.1	54.3	20	18 45	19 08	19 36	23 48	24 27	00 27	01 10		
	08	296	48.0		28.3	190	35.9	12.1	24	07.9	8.0	54.3	30	19 02	19 26	19 59	23 31	24 05	00 05	00 44		
	09	311	47.9		27.7	205	07.0	12.1	24	15.9	7.9	54.3	35	19 12	19 40	20 14	23 21	23 52	24 29	00 29		
10	326	47.7		27.0	219	38.1	12.0	24	23.8	7.7	54.3	40	19 23	19 54	20 31	23 09	23 38	24 12	00 12			
11	341	47.6		26.4	234	09.1	12.0	24	31.5	7.7	54.3	45	19 37	20 11	20 54	22 56	23 20	23 51	24 29			
12	356	47.5	18	25.7	248	40.1	11.9	N 24	39.2	7.5	54.3	S 50	19 53	20 32	21 24	22 39	22 59	23 25	24 00			
13	11	47.4		25.1	263	11.0	11.8	24	46.7	7.5	54.2	52	20 01	20 43	21 40	22 32	22 49	23 12	23 45			
14	26	47.2		24.4	277	41.8	11.9	24	54.2	7.3	54.2	54	20 10	20 55	21 59	22 23	22 38	22 58	23 28			
15	41	47.1		23.8	292	12.7	11.7	25	01.5	7.2	54.2	56	20 20	21 09	22 25	22 14	22 25	22 41	23 08			
16	56	47.0		23.1	306	43.4	11.7	25	08.7	7.1	54.2	58	20 31	21 26	23 01	22 03	22 09	22 21	22 42			
17	71	46.9		22.5	321	14.1	11.7	25	15.8	6.9	54.2	S 60	20 44	21 46		21 51	21 52	21 56	22 07			
18	86	46.7	18	21.8	335	44.8	11.5	N 25	22.7	6.9	54.2	Day		SUN Eqn. of Time 00 ^h		Mer. Pass.		MOON Mer. Upper Pass. Lower Age Phase				
19	101	46.6		21.2	350	15.3	11.6	25	29.6	6.7	54.2											
20	116	46.5		20.5	4	45.9	11.5	25	36.3	6.7	54.2											
21	131	46.4		19.9	19	16.4	11.4	25	43.0													

	ARIES	VENUS -4.1	MARS +1.1	JUPITER -1.8	SATURN +0.8	STARS		
G.M.T.	G.H.A.	G.H.A. Dec.	G.H.A. Dec.	G.H.A. Dec.	G.H.A. Dec.	Name	S.H.A.	Dec.
d h	° ' "	° ' " ° ' "	° ' " ° ' "	° ' " ° ' "	° ' " ° ' "		° ' "	° ' "
TUESDAY	00 127 04.8	131 59.0 S 1 35.9	263 07.2 S 15 21.7	301 02.3 S 1 03.7	107 44.1 N 5 33.9	Acamar	315 43.5	S 40 25.8
	01 142 07.3	146 59.3 34.7	278 08.4 22.1	316 04.8 03.7	122 46.4 33.9	Achernar	335 51.4	S 57 23.8
	02 157 09.8	161 59.5 33.5	293 09.6 22.5	331 07.3 03.6	137 48.7 34.0	Acrux	173 46.9	S 62 55.5
	03 172 12.2	176 59.8 32.2	308 10.7 22.9	346 09.8 03.6	152 51.0 34.1	Adhara	255 38.5	S 28 55.7
	04 187 14.7	192 00.0 31.0	323 11.9 23.2	1 12.3 03.5	167 53.4 34.1	Aldebaran	291 27.7	N 16 27.0
	05 202 17.2	207 00.3 29.7	338 13.0 23.6	16 14.9 03.5	182 55.7 34.2			
	06 217 19.6	222 00.5 S 1 28.5	353 14.2 S 15 24.0	31 17.4 S 1 03.5	197 58.0 N 5 34.3	Alioth	166 49.5	N 56 07.3
	07 232 22.1	237 00.8 27.3	8 15.3 24.4	46 19.9 03.4	213 00.3 34.4	Alkaid	153 24.9	N 49 27.7
	08 247 24.6	252 01.1 26.0	23 16.5 24.8	61 22.4 03.4	228 02.6 34.4	Al Na'ir	28 25.9	S 47 06.9
	09 262 27.0	267 01.3 24.8	38 17.7 25.2	76 24.9 03.4	243 04.9 34.5	Alnilam	276 20.1	S 1 13.2
	10 277 29.5	282 01.6 23.5	53 18.8 25.6	91 27.4 03.3	258 07.2 34.6	Alphard	218 28.7	S 8 31.4
	11 292 32.0	297 01.8 22.3	68 20.0 25.9	106 30.0 03.3	273 09.6 34.6			
	12 307 34.4	312 02.1 S 1 21.1	83 21.1 S 15 26.3	121 32.5 S 1 03.3	288 11.9 N 5 34.7	Alphecca	126 39.4	N 26 48.7
	13 322 36.9	327 02.4 19.8	98 22.3 26.7	136 35.0 03.2	303 14.2 34.8	Alpheratz	358 18.5	N 28 55.2
	14 337 39.3	342 02.6 18.6	113 23.4 27.1	151 37.5 03.2	318 16.5 34.9	Altair	62 41.2	N 8 46.9
	15 352 41.8	357 02.9 17.3	128 24.6 27.5	166 40.0 03.2	333 18.8 34.9	Ankaa	353 48.7	S 42 28.6
	16 7 44.3	12 03.2 16.1	143 25.8 27.9	181 42.6 03.1	348 21.1 35.0	Antares	113 07.6	S 26 22.0
	17 22 46.7	27 03.4 14.9	158 26.9 28.2	196 45.1 03.1	3 23.4 35.1			
	18 37 49.2	42 03.7 S 1 13.6	173 28.1 S 15 28.6	211 47.6 S 1 03.1	18 25.8 N 5 35.1	Arcturus	146 26.2	N 19 20.3
	19 52 51.7	57 04.0 12.4	188 29.2 29.0	226 50.1 03.0	33 28.1 35.2	Atria	108 40.0	S 68 58.3
	20 67 54.1	72 04.3 11.1	203 30.4 29.4	241 52.6 03.0	48 30.4 35.3	Avior	234 31.3	S 59 24.5
	21 82 56.6	87 04.5 9.9	218 31.6 29.8	256 55.2 02.9	63 32.7 35.4	Bellatrix	279 07.7	N 6 19.5
	22 97 59.1	102 04.8 08.7	233 32.7 30.2	271 57.7 02.9	78 35.0 35.4	Betelgeuse	271 37.3	N 7 24.2
	23 113 01.5	117 05.1 07.4	248 33.9 30.5	287 00.2 02.9	93 37.3 35.5			
WEDNESDAY	00 128 04.0	132 05.3 S 1 06.2	263 35.0 S 15 30.9	302 02.7 S 1 02.8	108 39.6 N 5 35.6	Canopus	264 10.6	S 52 40.7
	01 143 06.5	147 05.6 04.9	278 36.2 31.3	317 05.2 02.8	123 41.9 35.6	Capella	281 23.7	N 45 58.4
	02 158 08.9	162 05.9 03.7	293 37.4 31.7	332 07.8 02.8	138 44.3 35.7	Deneb	49 54.9	N 45 10.0
	03 173 11.4	177 06.2 02.5	308 38.5 32.1	347 10.3 02.7	153 46.6 35.8	Denebola	183 07.5	N 14 44.5
	04 188 13.8	192 06.4 01.2	323 39.7 32.5	2 12.8 02.7	168 48.9 35.9	Diphda	349 29.5	S 18 09.5
	05 203 16.3	207 06.7 1 00.0	338 40.8 32.8	17 15.3 02.6	183 51.2 35.9			
	06 218 18.8	222 07.0 S 0 58.8	353 42.0 S 15 33.2	32 17.9 S 1 02.6	198 53.5 N 5 36.0	Dubhe	194 31.7	N 61 54.9
	07 233 21.2	237 07.3 57.5	8 43.2 33.6	47 20.4 02.6	213 55.8 36.1	El Nath	278 54.7	N 28 35.2
	08 248 23.7	252 07.6 56.3	23 44.3 34.0	62 22.9 02.5	228 58.1 36.2	Eltanin	91 02.1	N 51 29.2
	09 263 26.2	267 07.9 55.0	38 45.5 34.4	77 25.4 02.5	244 00.4 36.2	Enif	34 20.3	N 9 43.8
	10 278 28.6	282 08.1 53.8	53 46.6 34.7	92 27.9 02.5	259 02.7 36.3	Fomalhaut	16 01.0	S 29 47.4
	11 293 31.1	297 08.4 52.6	68 47.8 35.1	107 30.5 02.4	274 05.1 36.4			
	12 308 33.6	312 08.7 S 0 51.3	83 49.0 S 15 35.5	122 33.0 S 1 02.4	289 07.4 N 5 36.4	Gacrux	172 38.3	S 56 56.2
	13 323 36.0	327 09.0 50.1	98 50.1 35.9	137 35.5 02.3	304 09.7 36.5	Gienah	176 26.7	S 17 22.2
	14 338 38.5	342 09.3 48.8	113 51.3 36.3	152 38.1 02.3	319 12.0 36.6	Hadar	149 35.8	S 60 13.3
	15 353 40.9	357 09.6 47.6	128 52.4 36.6	167 40.6 02.3	334 14.3 36.7	Hamal	328 38.7	N 23 19.1
	16 8 43.4	12 09.8 46.4	143 53.6 37.0	182 43.1 02.2	349 16.6 36.7	Kaus Aust.	84 28.5	S 34 24.2
	17 23 45.9	27 10.1 45.1	158 54.8 37.4	197 45.6 02.2	4 18.9 36.8			
	18 38 48.3	42 10.4 S 0 43.9	173 55.9 S 15 37.8	212 48.2 S 1 02.1	19 21.2 N 5 36.9	Kochab	137 18.1	N 74 16.5
	19 53 50.8	57 10.7 42.7	188 57.1 38.2	227 50.7 02.1	34 23.5 37.0	Markab	14 12.0	N 15 02.2
	20 68 53.3	72 11.0 41.4	203 58.3 38.5	242 53.2 02.1	49 25.8 37.0	Menkar	314 50.0	N 3 58.2
	21 83 55.7	87 11.3 40.2	218 59.4 38.9	257 55.7 02.0	64 28.2 37.1	Menkent	148 47.2	S 36 13.1
	22 98 58.2	102 11.6 38.9	234 00.6 39.3	272 58.3 02.0	79 30.5 37.2	Miaplacidus	221 46.3	S 69 35.2
	23 114 00.7	117 11.9 37.7	249 01.7 39.7	288 00.8 01.9	94 32.8 37.2			
THURSDAY	00 129 03.1	132 12.2 S 0 36.5	264 02.9 S 15 40.1	303 03.3 S 1 01.9	109 35.1 N 5 37.3	Mirfak	309 28.4	N 49 45.4
	01 144 05.6	147 12.5 35.2	279 04.1 40.4	318 05.9 01.9	124 37.4 37.4	Nunki	76 40.1	S 26 20.4
	02 159 08.0	162 12.8 34.0	294 05.2 40.8	333 08.4 01.8	139 39.7 37.5	Peacock	54 12.3	S 56 50.3
	03 174 10.5	177 13.1 32.8	309 06.4 41.2	348 10.9 01.8	154 42.0 37.5	Pollux	244 08.2	N 28 06.2
	04 189 13.0	192 13.4 31.5	324 07.6 41.6	3 13.4 01.7	169 44.3 37.6	Procyon	245 34.4	N 5 18.4
	05 204 15.4	207 13.7 30.3	339 08.7 42.0	18 16.0 01.7	184 46.6 37.7			
	06 219 17.9	222 14.0 S 0 29.1	354 09.9 S 15 42.3	33 18.5 S 1 01.7	199 48.9 N 5 37.8	Rasalhague	96 37.8	N 12 34.6
	07 234 20.4	237 14.3 27.8	9 11.0 42.7	48 21.0 01.6	214 51.2 37.8	Regulus	208 18.8	N 12 07.1
	08 249 22.8	252 14.6 26.6	24 12.2 43.1	63 23.6 01.6	229 53.6 37.9	Rigel	281 44.0	S 8 14.1
	09 264 25.3	267 14.9 25.4	39 13.4 43.5	78 26.1 01.5	244 55.9 38.0	Rigel Kent.	140 37.8	S 60 42.3
	10 279 27.8	282 15.2 24.1	54 14.5 43.8	93 28.6 01.5	259 58.2 38.1	Sabik	102 51.2	S 15 41.4
	11 294 30.2	297 15.5 22.9	69 15.7 44.2	108 31.2 01.5	275 00.5 38.1			
	12 309 32.7	312 15.8 S 0 21.6	84 16.9 S 15 44.6	123 33.7 S 1 01.4	290 02.8 N 5 38.2	Schedar	350 19.4	N 56 22.3
	13 324 35.1	327 16.1 20.4	99 18.0 45.0	138 36.2 01.4	305 05.1 38.3	Shaula	97 07.7	S 37 05.0
	14 339 37.6	342 16.4 19.2	114 19.2 45.3	153 38.8 01.3	320 07.4 38.4	Sirius	259 03.0	S 16 40.3
	15 354 40.1	357 16.7 17.9	129 20.4 45.7	168 41.3 01.3	335 09.7 38.4	Spica	159 06.5	S 11 00.1
	16 9 42.5	12 17.0 16.7	144 21.5 46.1	183 43.8 01.3	350 12.0 38.5	Suhail	223 16.8	S 43 18.3
	17 24 45.0	27 17.3 15.5	159 22.7 46.5	198 46.4 01.2	5 14.3 38.6			
	18 39 47.5	42 17.6 S 0 14.2	174 23.9 S 15 46.8	213 48.9 S 1 01.2	20 16.6 N 5 38.6	Vega	81 02.0	N 38 44.9
	19 54 49.9	57 17.9 13.0	189 25.0 47.2	228 51.4 01.1	35 18.9 38.7	Zuben'ubi	137 42.6	S 15 54.9
	20 69 52.4	72 18.3 11.8	204 26.2 47.6	243 54.0 01.1	50 21.2 38.8			
	21 84 54.9	87 18.6 10.5	219 27.4 48.0	258 56.5 01.0	65 23.5 38.9			
	22 99 57.3	102 18.9 09.3	234 28.5 48.3	273 59.0 01.0	80 25.8 38.9			
	23 114 59.8	117 19.2 08.1	249 29.7 48.7	289 01.6 01.0	95 28.2 39.0			
Mer. Pass. 15 25.2						v 0.3	d 1.2	v 1.2 d 0.4
						v 2.5	d 0.0	v 2.3 d 0.1

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise									
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	28	29	30	31					
d	h	°	'	°	'	°	'	°	'	h	m	h	m	h	m	h	m	h	m		
TUESDAY	28 00	176	46.0	S 18	17.9	62	47.5	11.3	N 26	02.1	6.2	54.2	N 72	07 21	08 53	10 57					
	01	191	45.9		17.3	77	17.8	11.2	26	08.3	6.0	54.2	N 70	07 11	08 32	10 04					
	02	206	45.8		16.6	91	48.0	11.2	26	14.3	5.9	54.1	68	07 04	08 15	09 31					
	03	221	45.6		16.0	106	18.2	11.2	26	20.2	5.8	54.1	66	06 57	08 02	09 08					
	04	236	45.5		15.3	120	48.4	11.0	26	26.0	5.6	54.1	64	06 51	07 51	08 49					
	05	251	45.4		14.7	135	18.4	11.1	26	31.6	5.6	54.1	62	06 46	07 41	08 34	09 20				11 51
	06	266	45.3	S 18	14.0	149	48.5	11.0	N 26	37.2	5.4	54.1	60	06 42	07 33	08 21	10 03	10 24	11 16	12 39	
	07	281	45.2		13.3	164	18.5	10.9	26	42.6	5.3	54.1	N 58	06 38	07 26	08 10	10 32	11 02	11 54	13 09	
	08	296	45.0		12.7	178	48.4	10.9	26	47.9	5.2	54.1	56	06 34	07 19	08 01	10 55	11 29	12 22	13 32	
	09	311	44.9		12.0	193	18.3	10.8	26	53.1	5.0	54.1	54	06 30	07 13	07 52	11 13	11 50	12 43	13 50	
	10	326	44.8		11.4	207	48.1	10.8	26	58.1	4.9	54.1	52	06 27	07 08	07 45	11 29	12 08	13 01	14 06	
	11	341	44.7		10.7	222	17.9	10.8	27	03.0	4.8	54.1	50	06 24	07 03	07 38	11 43	12 23	13 16	14 19	
	12	356	44.6	S 18	10.0	236	47.7	10.7	N 27	07.8	4.7	54.1	45	06 17	06 52	07 23	12 10	12 53	13 46	14 47	
	13	11	44.5		09.4	251	17.4	10.7	27	12.5	4.5	54.1	N 40	06 10	06 43	07 11	12 32	13 17	14 10	15 09	
	14	26	44.3		08.7	265	47.1	10.6	27	17.0	4.4	54.1	35	06 04	06 34	07 01	12 51	13 37	14 29	15 27	
	15	41	44.2		08.1	280	16.7	10.6	27	21.4	4.3	54.1	30	05 58	06 27	06 52	13 06	13 54	14 46	15 42	
	16	56	44.1		07.4	294	46.3	10.5	27	25.7	4.1	54.1	20	05 47	06 13	06 36	13 33	14 22	15 14	16 09	
	17	71	44.0		06.7	309	15.8	10.5	27	29.8	4.0	54.1	N 10	05 35	06 01	06 23	13 56	14 46	15 38	16 31	
	18	86	43.9	S 18	06.1	323	45.3	10.5	N 27	33.8	3.9	54.1	0	05 23	05 48	06 10	14 18	15 09	16 01	16 52	
	19	101	43.8		05.4	338	14.8	10.4	27	37.7	3.8	54.1	S 10	05 08	05 34	05 56	14 40	15 32	16 23	17 13	
	20	116	43.7		04.7	352	44.2	10.4	27	41.5	3.6	54.1	20	04 51	05 19	05 42	15 03	15 56	16 47	17 35	
	21	131	43.6		04.1	7	13.6	10.3	27	45.1	3.5	54.1	30	04 29	05 00	05 26	15 30	16 25	17 15	18 01	
	22	146	43.4		03.4	21	42.9	10.3	27	48.6	3.4	54.1	35	04 15	04 48	05 16	15 46	16 42	17 32	18 16	
	23	161	43.3		02.7	36	12.2	10.3	27	52.0	3.2	54.1	40	03 57	04 35	05 05	16 05	17 01	17 51	18 34	
	24												45	03 36	04 18	04 52	16 28	17 25	18 15	18 55	
WEDNESDAY	29 00	176	43.2	S 18	02.1	50	41.5	10.2	N 27	55.2	3.1	54.1	S 50	03 06	03 57	04 36	16 57	17 56	18 45	19 22	
	01	191	43.1		01.4	65	10.7	10.2	27	58.3	3.0	54.1	52	02 51	03 47	04 29	17 11	18 12	19 00	19 35	
	02	206	43.0		00.7	79	39.9	10.2	28	01.3	2.8	54.1	54	02 33	03 36	04 20	17 28	18 30	19 17	19 50	
	03	221	42.9	18	00.1	94	09.1	10.2	28	04.1	2.7	54.1	56	02 10	03 22	04 11	17 48	18 52	19 38	20 07	
	04	236	42.8	17	59.4	108	38.3	10.1	28	06.8	2.6	54.1	58	01 37	03 06	04 00	18 14	19 20	20 04	20 28	
	05	251	42.7		58.7	123	07.4	10.0	28	09.4	2.4	54.1	S 60	01 11	02 47	03 48	18 48	20 02	20 40	20 54	
	06	266	42.6	S 17	58.1	137	36.4	10.1	N 28	11.8	2.3	54.1									
	07	281	42.4		57.4	152	05.5	10.0	28	14.1	2.1	54.1	Lat.	Sun-set	Twilight		Moonset				
	08	296	42.3		56.7	166	34.5	10.0	28	16.2	2.1	54.1			Civil	Naut.	28	29	30	31	
	09	311	42.2		56.0	181	03.5	9.9	28	18.3	1.8	54.1					h m	h m	h m	h m	
	10	326	42.1		55.4	195	32.5	9.9	28	20.1	1.8	54.1									
	11	341	42.0		54.7	210	01.4	10.0	28	21.9	1.6	54.1									
	12	356	41.9	S 17	54.0	224	30.4	9.9	N 28	23.5	1.5	54.1	N 72	13 30	15 35	17 07					
	13	11	41.8		53.4	238	59.3	9.8	28	25.0	1.3	54.1	N 70	14 24	15 56	17 16					
	14	26	41.7		52.7	253	28.1	9.8	28	26.3	1.2	54.1	68	14 56	16 12	17 24					
	15	41	41.6		52.0	267	57.0	9.8	28	27.5	1.1	54.1	66	15 20	16 25	17 30					
	16	56	41.5		51.3	282	25.9	9.8	28	28.6	0.9	54.1	64	15 38	16 36	17 36					
	17	71	41.4		50.7	296	54.7	9.8	28	29.5	0.8	54.1	62	15 53	16 46	17 41	06 43			09 33	
	18	86	41.3	S 17	50.0	311	23.5	9.8	N 28	30.3	0.6	54.1	60	16 06	16 54	17 45	06 00	07 24	08 21	08 45	
	19	101	41.2		49.3	325	52.3	9.8	28	30.9	0.6	54.1	N 58	16 17	17 01	17 50	05 31	06 47	07 42	08 15	
	20	116	41.0		48.6	340	21.1	9.8	28	31.5	0.3	54.1	56	16 26	17 08	17 53	05 09	06 20	07 15	07 52	
	21	131	40.9		47.9	354	49.8	9.8	28	31.8	0.3	54.1	54	16 35	17 14	17 57	04 51	05 59	06 53	07 33	
	22	146	40.8		47.3	9	18.6	9.7	28	32.1	0.1	54.1	52	16 42	17 19	18 00	04 36	05 41	06 36	07 17	
	23	161	40.7		46.6	23	47.3	9.8	28	32.2	0.1	54.1	50	16 49	17 24	18 03	04 22	05 26	06 20	07 03	
	24												45	17 03	17 35	18 10	03 55	04 56	05 50	06 35	
THURSDAY	30 00	176	40.6	S 17	45.9	38	16.1	9.7	N 28	32.1	0.2	54.1	N 40	17 15	17 44	18 17	03 34	04 33	05 26	06 12	
	01	191	40.5		45.2	52	44.8	9.7	28	31.9	0.3	54.1	35	17 26	17 52	18 23	03 16	04 13	05 06	05 54	
	02	206	40.4		44.5	67	13.5	9.8	28	31.6	0.5	54.1	30	17 35	18 00	18 28	03 01	03 57	04 50	05 38	
	03	221	40.3		43.9	81	42.3	9.7	28	31.1	0.6	54.1	20	17 50	18 13	18 40	02 35	03 29	04 21	05 11	
	04	236	40.2		43.2	96	11.0	9.7	28	30.5	0.7	54.1	N 10	18 04	18 26	18 51	02 13	03 05	03 57	04 47	
	05	251	40.1		42.5	110	39.7	9.7	28	29.8	0.9	54.1	0	18 17	18 38	19 04	01 52	02 42	03 34	04 26	
	06	266	40.0	S 17	41.8	125	08.4	9.7	N 28	28.9	1.0	54.1	S 10	18 30	18 52	19 18	01 32	02 20	03 11	04 04	
	07	281	39.9		41.1	139	37.1	9.7	28	27.9	1.2	54.2	20	18 44	19 07	19 35	01 10	01 56	02 47	03 40	
	08	296	39.8		40.4	154	05.8	9.7	28	26.7	1.3	54.2	30	19 00	19 26	19 57	00 44	01 28	02 18	03 13	
	09	311	39.7		39.8	168	34.5	9.7	28	25.4	1.4	54.2	35	19 10	19 37	20 11	00 29	01 12	02 01	02 56	
	10	326	39.6		39.1	183	03.2	9.8	28	24.0	1.6	54.2	40	19 21	19 51	20 28	00 12	00 53	01 41	02 37	
	11	341	39.5		38.4	197	32.0	9.7	28	22.4	1.7	54.2	45	19 34	20 07	20 49	24 29	00 29	01 17	02 14	
	12	356																			

G.M.T.		ARIES		VENUS -41		MARS +11		JUPITER -18		SATURN +08		STARS			
		G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
31	00	130 02.3	132 19.5	S 0 06.8	264 30.8	S 15 49.1	304 04.1	S 1 00.9	110 30.5	N 5 39.1			Acamar	315 43.5	S 40 25.9
	01	145 04.7	147 19.8	05.6	279 32.0	49.5	319 06.6	00.9	125 32.8	39.2			Achernar	335 51.5	S 57 23.8
	02	160 07.2	162 20.2	04.4	294 33.2	49.8	334 09.2	00.8	140 35.1	39.2			Acrux	173 46.8	S 62 55.5
	03	175 09.7	177 20.5	03.1	309 34.3	50.2	349 11.7	00.8	155 37.4	39.3			Adhara	255 38.5	S 28 55.7
	04	190 12.1	192 20.8	01.9	324 35.5	50.6	4 14.2	00.7	170 39.7	39.4			Aldebaran	291 27.7	N 16 27.0
	05	205 14.6	207 21.1	S 0 00.7	339 36.7	51.0	19 16.8	00.7	185 42.0	39.5					
F R I D A Y	06	220 17.0	222 21.4	N 0 00.6	354 37.8	S 15 51.3	34 19.3	S 1 00.7	200 44.3	N 5 39.5			Alioth	166 49.4	N 56 07.3
	07	235 19.5	237 21.8	01.8	9 39.0	51.7	49 21.9	00.6	215 46.6	39.6			Alkaid	153 24.9	N 49 27.7
	08	250 22.0	252 22.1	03.0	24 40.2	52.1	64 24.4	00.6	230 48.9	39.7			Al Na'ir	28 25.9	S 47 06.9
	09	265 24.4	267 22.4	04.3	39 41.3	52.4	79 26.9	00.5	245 51.2	39.8			Alnilam	276 20.1	S 1 13.2
	10	280 26.9	282 22.7	05.5	54 42.5	52.8	94 29.5	00.5	260 53.5	39.8			Alphard	218 28.7	S 8 31.4
	11	295 29.4	297 23.0	06.7	69 43.7	53.2	109 32.0	00.4	275 55.8	39.9					
	12	310 31.8	312 23.4	N 0 08.0	84 44.8	S 15 53.6	124 34.6	S 1 00.4	290 58.1	N 5 40.0			Alphecca	126 39.4	N 26 48.7
	13	325 34.3	327 23.7	09.2	99 46.0	53.9	139 37.1	00.3	306 00.4	40.1			Alpheratz	358 18.5	N 28 55.2
	14	340 36.8	342 24.0	10.4	114 47.2	54.3	154 39.6	00.3	321 02.7	40.1			Altair	62 41.2	N 8 46.9
	15	355 39.2	357 24.4	11.6	129 48.3	54.7	169 42.2	00.3	336 05.0	40.2			Ankaa	353 48.7	S 42 28.6
	16	10 41.7	12 24.7	12.9	144 49.5	55.0	184 44.7	00.2	351 07.3	40.3			Antares	113 07.6	S 26 22.0
	17	25 44.1	27 25.0	14.1	159 50.7	55.4	199 47.3	00.2	6 09.6	40.4					
	18	40 46.6	42 25.4	N 0 15.3	174 51.9	S 15 55.8	214 49.8	S 1 00.1	21 11.9	N 5 40.5			Arcturus	146 26.2	N 19 20.3
	19	55 49.1	57 25.7	16.6	189 53.0	56.2	229 52.3	00.1	36 14.2	40.5			Atria	108 40.0	S 68 58.3
	20	70 51.5	72 26.0	17.8	204 54.2	56.5	244 54.9	00.0	51 16.5	40.6			Avior	234 31.3	S 59 24.5
	21	85 54.0	87 26.4	19.0	219 55.4	56.9	259 57.4	1 00.0	66 18.8	40.7			Bellatrix	279 07.7	N 6 19.5
	22	100 56.5	102 26.7	20.3	234 56.5	57.3	275 00.0	0 59.9	81 21.1	40.8			Betelgeuse	271 37.3	N 7 24.2
23	115 58.9	117 27.0	21.5	249 57.7	57.6	290 02.5	59.9	96 23.4	40.8						
1	00	131 01.4	132 27.4	N 0 22.7	264 58.9	S 15 58.0	305 05.1	S 0 59.9	111 25.8	N 5 40.9			Canopus	264 10.6	S 52 40.7
	01	146 03.9	147 27.7	24.0	280 00.0	58.4	320 07.6	59.8	126 28.1	41.0			Capella	281 23.7	N 45 58.4
	02	161 06.3	162 28.0	25.2	295 01.2	58.7	335 10.1	59.8	141 30.4	41.1			Deneb	49 54.9	N 45 10.0
	03	176 08.8	177 28.4	26.4	310 02.4	59.1	350 12.7	59.7	156 32.7	41.1			Denebola	183 07.5	N 14 44.5
	04	191 11.3	192 28.7	27.6	325 03.5	59.5	5 15.2	59.7	171 35.0	41.2			Diphda	349 29.5	S 18 09.5
	05	206 13.7	207 29.1	28.9	340 04.7	15 59.9	20 17.8	59.6	186 37.3	41.3					
S A T U R D A Y	06	221 16.2	222 29.4	N 0 30.1	355 05.9	S 16 00.2	35 20.3	S 0 59.6	201 39.6	N 5 41.4			Dubhe	194 31.7	N 61 54.9
	07	236 18.6	237 29.7	31.3	10 07.0	00.6	50 22.9	59.5	216 41.9	41.4			Elinath	278 54.7	N 28 35.2
	08	251 21.1	252 30.1	32.6	25 08.2	01.0	65 25.4	59.5	231 44.2	41.5			Eltanin	91 02.1	N 51 29.1
	09	266 23.6	267 30.4	33.8	40 09.4	01.3	80 28.0	59.4	246 46.5	41.6			Enif	34 20.3	N 9 43.8
	10	281 26.0	282 30.8	35.0	55 10.6	01.7	95 30.5	59.4	261 48.8	41.7			Fomalhaut	16 01.0	S 29 47.4
	11	296 28.5	297 31.1	36.2	70 11.7	02.1	110 33.1	59.3	276 51.1	41.8					
	12	311 31.0	312 31.5	N 0 37.5	85 12.9	S 16 02.4	125 35.6	S 0 59.3	291 53.4	N 5 41.8			Gacrux	172 38.3	S 56 56.2
	13	326 33.4	327 31.8	38.7	100 14.1	02.8	140 38.1	59.2	306 55.7	41.9			Gienah	176 26.7	S 17 22.2
	14	341 35.9	342 32.2	39.9	115 15.2	03.2	155 40.7	59.2	321 58.0	42.0			Hadar	149 35.8	S 60 13.3
	15	356 38.4	357 32.5	41.2	130 16.4	03.5	170 43.2	59.1	337 00.3	42.1			Hamal	328 38.7	N 23 19.1
	16	11 40.8	12 32.9	42.4	145 17.6	03.9	185 45.8	59.1	352 02.6	42.1			Kaus Aust.	84 28.5	S 34 24.2
	17	26 43.3	27 33.2	43.6	160 18.8	04.3	200 48.3	59.1	7 04.9	42.2					
	18	41 45.8	42 33.6	N 0 44.8	175 19.9	S 16 04.6	215 50.9	S 0 59.0	22 07.2	N 5 42.3			Kochab	137 18.0	N 74 16.5
	19	56 48.2	57 33.9	46.1	190 21.1	05.0	230 53.4	59.0	37 09.5	42.4			Markab	14 12.0	N 15 02.2
	20	71 50.7	72 34.3	47.3	205 22.3	05.4	245 56.0	58.9	52 11.8	42.4			Menkar	314 50.1	N 3 58.2
	21	86 53.1	87 34.6	48.5	220 23.4	05.7	260 58.5	58.9	67 14.1	42.5			Menkent	148 47.2	S 36 13.1
	22	101 55.6	102 35.0	49.7	235 24.6	06.1	276 01.1	58.8	82 16.4	42.6			Miaplacidus	221 46.3	S 69 35.2
23	116 58.1	117 35.4	51.0	250 25.8	06.5	291 03.6	58.8	97 18.7	42.7						
2	00	132 00.5	132 35.7	N 0 52.2	265 27.0	S 16 06.8	306 06.2	S 0 58.7	112 21.0	N 5 42.8			Mirfak	309 28.5	N 49 45.5
	01	147 03.0	147 36.1	53.4	280 28.1	07.2	321 08.7	58.7	127 23.3	42.8			Nunki	76 40.1	S 26 20.4
	02	162 05.5	162 36.4	54.6	295 29.3	07.6	336 11.3	58.6	142 25.6	42.9			Peacock	54 12.3	S 56 50.3
	03	177 07.9	177 36.8	55.9	310 30.5	07.9	351 13.8	58.6	157 27.8	43.0			Pollux	244 08.2	N 28 06.2
	04	192 10.4	192 37.2	57.1	325 31.7	08.3	6 16.4	58.5	172 30.1	43.1			Procyon	245 34.4	N 5 18.4
	05	207 12.9	207 37.5	58.3	340 32.8	08.6	21 18.9	58.5	187 32.4	43.1					
S U N D A Y	06	222 15.3	222 37.9	N 0 59.5	355 34.0	S 16 09.0	36 21.5	S 0 58.4	202 34.7	N 5 43.2			Rasalhague	96 37.8	N 12 34.6
	07	237 17.8	237 38.3	1 00.8	10 35.2	09.4	51 24.0	58.4	217 37.0	43.3			Regulus	208 18.7	N 12 07.1
	08	252 20.3	252 38.6	02.0	25 36.3	09.7	66 26.6	58.3	232 39.3	43.4			Rigel	281 44.0	S 8 14.1
	09	267 22.7	267 39.0	03.2	40 37.5	10.1	81 29.2	58.3	247 41.6	43.5			Rigel Kent.	140 37.7	S 60 42.3
	10	282 25.2	282 39.4	04.4	55 38.7	10.5	96 31.7	58.2	262 43.9	43.5			Sabik	102 51.2	S 15 41.4
	11	297 27.6	297 39.7	05.7	70 39.9	10.8	111 34.3	58.2	277 46.2	43.6					
	12	312 30.1	312 40.1	N 1 06.9	85 41.0	S 16 11.2	126 36.8	S 0 58.1	292 48.5	N 5 43.7			Schedar	350 19.4	N 56 22.3
	13	327 32.6	327 40.5	08.1	100 42.2	11.6	141 39.4	58.1	307 50.8	43.8			Shaula	97 07.7	S 37 05.0
	14	342 35.0	342 40.8	09.3	115 43.4	11.9	156 41.9	58.0	322 53.1	43.8			Sirius	259 03.0	S 16 40.4
	15	357 37.5	357 41.2	10.6	130 44.6	12.3	171 44.5	58.0	337 55.4	43.9			Spica	159 06.5	S 11 00.1
	16	12 40.0	12 41.6	11.8	145 45.7	12.6	186 47.0	57.9	352 57.7	44.0			Suhail	223 16.8	S 43 18.4
	17	27 42.4	27 41.9	13.0	160 46.9	13.0	201 49.6	57.9	8 00.0	44.1					
	18	42 44.9	42 42.3	N 1 14.2	175 48.1	S 16 13.4	216 52.1	S 0 57.8	23 02.3	N 5 44.2			Vega	81 02.0	N 38 44.9
	19	57 47.4	57 42.7	15.4	190 49.3	13.7	231 54.7	57.8	38 04.6	44.2			Zuben'ubi	137 42.6	S 15 54.9
	20	72 49.8	72 43.1	16.7	205 50.4	14.1	246 57.3	57.7	53 06.9	44.3					
	21	87 52.3	87 43.4	17.9	220 51.6	14.5	261 59.8	57.7	68 09.2	44.4					
	22	102 54.8	102 43.8	19.1	235 52.8	14.8	277 02.4	57.6	83 11.5	44.5			Venus	1 26.0	15 10
23	117 57.2	117 44.2	20.3	250 54.0	15.2	292 04.9	57.6	98 13.8	44.5			Mars	133 57.5	6 20	
													Jupiter	174 03.7	3 39
													Saturn	340 24.4	16 32
Mer. Pass. 15 13.4		v 0.3 d 1.2		v 1.2 d 0.4		v 2.5 d 0.0		v 2.3 d 0.1							

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise							
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.		Naut.	Civil		31	1	2	3				
d	h	°	'	°	'	°	'	'	°	h	m	h	m	h	m	h	m	h	m	
31	00	176	38.3	S 17	29.4	25	46.3	10.0	N 27	49.3	3.6	54.3	N 72	07 10	08 39	10 29	☐	☐	☐	15 25
	01	191	38.2		28.7	40	15.3	9.9	27	45.7	3.6	54.3	N 70	07 02	08 21	09 46	☐	☐		16 01
	02	206	38.1		28.0	54	44.2	10.0	27	42.1	3.8	54.3	68	06 56	08 06	09 18	☐	☐	14 01	16 26
	03	221	38.0		27.3	69	13.2	9.9	27	38.3	3.9	54.3	66	06 50	07 54	08 57	☐	☐	14 43	16 45
	04	236	37.9		26.6	83	42.1	10.1	27	34.4	4.1	54.3	64	06 45	07 44	08 40	☐	13 07	15 11	17 01
	05	251	37.8		25.9	98	11.2	10.0	27	30.3	4.2	54.3	62	06 40	07 35	08 26	11 51	13 46	15 33	17 13
	06	266	37.7	S 17	25.2	112	40.2	10.1	N 27	26.1	4.3	54.3	60	06 36	07 27	08 14	12 39	14 14	15 50	17 24
	07	281	37.6		24.5	127	09.3	10.1	27	21.8	4.5	54.3	N 58	06 33	07 20	08 04	13 09	14 35	16 04	17 33
	08	296	37.5		23.8	141	38.4	10.1	27	17.3	4.6	54.4	56	06 29	07 14	07 55	13 32	14 52	16 17	17 41
	09	311	37.4		23.1	156	07.5	10.1	27	12.7	4.7	54.4	54	06 26	07 09	07 47	13 50	15 07	16 27	17 49
	10	326	37.3		22.4	170	36.6	10.2	27	08.0	4.9	54.4	52	06 23	07 03	07 40	14 06	15 20	16 37	17 55
	11	341	37.2		21.7	185	05.8	10.3	27	03.1	5.0	54.4	50	06 20	06 59	07 34	14 19	15 31	16 45	18 01
	12	356	37.1	S 17	21.0	199	35.1	10.2	N 26	58.1	5.1	54.4	45	06 14	06 49	07 20	14 47	15 54	17 03	18 13
	13	11	37.1		20.3	214	04.3	10.3	26	53.0	5.3	54.4	N 40	06 08	06 40	07 09	15 09	16 12	17 18	18 23
	14	26	37.0		19.6	228	33.6	10.3	26	47.7	5.4	54.4	35	06 02	06 33	06 59	15 27	16 28	17 30	18 32
	15	41	36.9		18.9	243	02.9	10.4	26	42.3	5.5	54.4	30	05 57	06 25	06 51	15 42	16 41	17 41	18 40
	16	56	36.8		18.2	257	32.3	10.4	26	36.8	5.7	54.5	20	05 46	06 13	06 35	16 09	17 04	17 59	18 53
	17	71	36.7		17.5	272	01.7	10.4	26	31.1	5.8	54.5	N 10	05 35	06 01	06 22	16 31	17 24	18 15	19 04
	18	86	36.6	S 17	16.8	286	31.1	10.5	N 26	25.3	5.9	54.5	0	05 23	05 48	06 10	16 52	17 42	18 29	19 15
	19	101	36.5		16.1	301	00.6	10.5	26	19.4	6.0	54.5	S 10	05 10	05 35	05 58	17 13	18 00	18 44	19 25
	20	116	36.4		15.4	315	30.1	10.6	26	13.4	6.2	54.5	20	04 53	05 21	05 44	17 35	18 19	19 00	19 37
	21	131	36.3		14.7	329	59.7	10.6	26	07.2	6.3	54.5	30	04 32	05 03	05 28	18 01	18 42	19 17	19 49
	22	146	36.3		14.0	344	29.3	10.7	26	00.9	6.4	54.5	35	04 18	04 52	05 19	18 16	18 55	19 28	19 57
	23	161	36.2		13.3	358	59.0	10.6	25	54.5	6.6	54.5	40	04 02	04 39	05 09	18 34	19 10	19 39	20 05
													45	03 41	04 23	04 56	18 55	19 27	19 53	20 15
1	00	176	36.1	S 17	12.6	13	28.6	10.8	N 25	47.9	6.7	54.6	S 50	03 14	04 03	04 41	19 22	19 49	20 10	20 26
	01	191	36.0		11.9	27	58.4	10.8	25	41.2	6.8	54.6	52	02 59	03 54	04 34	19 35	20 00	20 18	20 32
	02	206	35.9		11.2	42	28.2	10.8	25	34.4	6.9	54.6	54	02 43	03 43	04 26	19 50	20 11	20 26	20 38
	03	221	35.8		10.5	56	58.0	10.9	25	27.5	7.1	54.6	56	02 22	03 30	04 17	20 07	20 25	20 36	20 44
	04	236	35.7		09.8	71	27.9	10.9	25	20.4	7.2	54.6	58	01 54	03 15	04 07	20 28	20 40	20 47	20 51
	05	251	35.7		09.1	85	57.8	10.9	25	13.2	7.3	54.6	S 60	01 08	02 58	03 56	20 54	20 59	21 00	21 00
	06	266	35.6	S 17	08.4	100	27.7	11.0	N 25	05.9	7.4	54.6								
	07	281	35.5		07.6	114	57.7	11.1	24	58.5	7.5	54.6								
	08	296	35.4		06.9	129	27.8	11.1	24	51.0	7.7	54.7								
	09	311	35.3		06.2	143	57.9	11.2	24	43.3	7.8	54.7								
	10	326	35.2		05.5	158	28.1	11.2	24	35.5	7.9	54.7								
	11	341	35.2		04.8	172	58.3	11.2	24	27.6	8.0	54.7								
	12	356	35.1	S 17	04.1	187	28.5	11.3	N 24	19.6	8.2	54.7								
	13	11	35.0		03.4	201	58.8	11.4	24	11.4	8.2	54.7	N 70	14 42	16 08	17 26	☐	☐		10 28
	14	26	34.9		02.7	216	29.2	11.4	24	03.2	8.4	54.7	68	15 10	16 23	17 33	☐	☐	10 50	10 01
	15	41	34.8		02.0	230	59.6	11.5	23	54.8	8.5	54.8	66	15 31	16 35	17 39	☐	☐	10 07	09 40
	16	56	34.8		01.2	245	30.1	11.5	23	46.3	8.6	54.8	64	15 48	16 45	17 44	☐	10 02	09 38	09 24
	17	71	34.7	17	00.5	260	00.6	11.5	23	37.7	8.8	54.8	62	16 02	16 54	17 48	09 33	09 22	09 15	09 10
	18	86	34.6	S 16	59.8	274	31.1	11.7	N 23	28.9	8.8	54.8	60	16 14	17 01	17 52	08 45	08 54	08 57	08 58
	19	101	34.5		59.1	289	01.8	11.6	23	20.1	8.9	54.8	N 58	16 24	17 08	17 56	08 15	08 33	08 42	08 48
	20	116	34.4		58.4	303	32.4	11.7	23	11.2	9.1	54.8	56	16 33	17 14	17 59	07 52	08 15	08 29	08 39
	21	131	34.4		57.7	318	03.1	11.8	23	02.1	9.2	54.8	54	16 41	17 19	18 02	07 33	08 00	08 18	08 31
	22	146	34.3		56.9	332	33.9	11.8	22	52.9	9.3	54.9	52	16 48	17 24	18 05	07 17	07 46	08 08	08 24
	23	161	34.2		56.2	347	04.7	11.9	22	43.6	9.3	54.9	50	16 54	17 29	18 08	07 03	07 35	07 59	08 17
													45	17 08	17 39	18 14	06 35	07 11	07 40	08 03
2	00	176	34.1	S 16	55.5	1	35.6	12.0	N 22	34.3	9.5	54.9	N 40	17 19	17 47	18 20	06 12	06 51	07 24	07 51
	01	191	34.1		54.8	16	06.6	12.0	22	24.8	9.7	54.9	35	17 29	17 55	18 25	05 54	06 35	07 11	07 41
	02	206	34.0		54.1	30	37.6	12.0	22	15.1	9.7	54.9	30	17 37	18 02	18 31	05 38	06 21	06 59	07 33
	03	221	33.9		53.3	45	08.6	12.1	22	05.4	9.8	54.9	20	17 52	18 15	18 41	05 11	05 57	06 39	07 17
	04	236	33.8		52.6	59	39.7	12.1	21	55.6	9.9	55.0	N 10	18 05	18 27	18 52	04 47	05 36	06 21	07 04
	05	251	33.7		51.9	74	10.8	12.3	21	45.7	10.1	55.0	0	18 17	18 39	19 04	04 26	05 16	06 05	06 51
	06	266	33.7	S 16	51.2	88	42.1	12.2	N 21	35.6	10.1	55.0	S 10	18 30	18 52	19 17	04 04	04 57	05 48	06 39
	07	281	33.6		50.5	103	13.3	12.3	21	25.5	10.2	55.0	20	18 43	19 06	19 34	03 40	04 35	05 31	06 25
	08	296	33.5		49.7	117	44.6	12.4	21	15.3	10.4	55.0	30	18 58	19 24	19 55	03 13	04 11	05 10	06 09
	09	311	33.4		49.0	132	16.0	12.4	21	04.9	10.4	55.0	35	19 07	19 35	20 08	02 56	03 56	04 58	06 00
	10	326	33.4		48.3	146	47.4	12.5	20	54.5	10.5	55.0	40	19 18	19 48	20 24	02 37	03 39	04 44	05 49
	11	341	33.3		47.6	161	18.9	12.5	20	44.0	10.7	55.1	45	19 30	20 03	20 45	02 14	03 19	04 27	05 37
	12	356	33.2	S 16	46.8	175	50.4	12.6	N 20	33.3	10.7	55.1	S 50	19 45	20 23	21 12	01 45	02 53	04 06	05 22
	13	11	33.2		46.1	190	22.0	12.6	20	22.6	10.9	55.1	52	19 52	20 32	21 26	01 30	02 40	03 56	05 14
	14	26	33.1		45.4	204	53.6	12.7	20	11.7	10.9	55.1	54	20 00	20 43	21 42	01 13	02 26	03 45	05 06
	15	41	33.0		44.7	219	25.3	12.8	20	00.8	11.0	55.1	56	20 08	20 55	22 03	00 52	02 09	03 32	04 57
	16	56	32.9		43.9	233	57.1													

G.M.T.		ARIES			VENUS -4-1			MARS +1-0			JUPITER -1-9			SATURN +0-8			STARS			
		G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.					
d	h	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	
MONDAY	3 00	132	59-7		132	44-6	N 1 21-6	265	55-1	S 16 15-5	307	07-5	S 0 57-5	113	16-1	N 5 44-6	Acamar	315	43-5	S 40 25-9
	01	148	02-1		147	45-0		280	56-3		322	10-0		128	18-4		Achernar	335	51-5	S 57 23-8
	02	163	04-6		162	45-3		295	57-5		337	12-6		143	20-7		Acruz	173	46-8	S 62 55-5
	03	178	07-1		177	45-7	25-2	310	58-7	16-6	352	15-2	57-3	158	23-0	44-9	Adhara	255	38-5	S 28 55-8
	04	193	09-5		192	46-1	26-4	325	59-8	17-0	7	17-7	57-3	173	25-3	44-9	Aldebaran	291	27-7	N 16 27-0
	05	208	12-0		207	46-5	27-7	341	01-0	17-3	22	20-3	57-2	188	27-6	45-0				
	06	223	14-5		222	46-9	N 1 28-9	356	02-2	S 16 17-7	37	22-8	S 0 57-2	203	29-8	N 5 45-1	Alioth	166	49-4	N 56 07-3
	07	238	16-9		237	47-3	30-1	11	03-4	18-1	52	25-4	57-1	218	32-1	45-2	Alkaid	153	24-8	N 49 27-6
	08	253	19-4		252	47-7	31-3	26	04-5	18-4	67	27-9	57-1	233	34-4	45-3	Al Na'ir	28	25-9	S 47 06-9
	09	268	21-9		267	48-0	32-5	41	05-7	18-8	82	30-5	57-0	248	36-7	45-3	Alnilam	276	20-1	S 1 13-2
	10	283	24-3		282	48-4	33-7	56	06-9	19-1	97	33-1	57-0	263	39-0	45-4	Alphard	218	28-7	S 8 31-4
	11	298	26-8		297	48-8	35-0	71	08-1	19-5	112	35-6	56-9	278	41-3	45-5				
	12	313	29-3		312	49-2	N 1 36-2	86	09-3	S 16 19-8	127	38-2	S 0 56-9	293	43-6	N 5 45-6	Alphecca	126	39-4	N 26 48-7
	13	328	31-7		327	49-6	37-4	101	10-4	20-2	142	40-8	56-8	308	45-9	45-6	Alpheratz	358	18-5	N 28 55-2
	14	343	34-2		342	50-0	38-6	116	11-6	20-6	157	43-3	56-8	323	48-2	45-7	Altair	62	41-2	N 8 46-9
	15	358	36-6		357	50-4	39-8	131	12-8	20-9	172	45-9	56-7	338	50-5	45-8	Ankaa	353	48-7	S 42 28-6
	16	13	39-1		12	50-8	41-1	146	14-0	21-3	187	48-4	56-7	353	52-8	45-9	Antares	113	07-6	S 26 22-0
	17	28	41-6		27	51-2	42-3	161	15-1	21-6	202	51-0	56-6	8	55-1	46-0				
	18	43	44-0		42	51-6	N 1 43-5	176	16-3	S 16 22-0	217	53-6	S 0 56-5	23	57-4	N 5 46-0	Arcturus	146	26-1	N 19 20-3
	19	58	46-5		57	52-0	44-7	191	17-5	22-4	232	56-1	56-5	38	59-7	46-1	Atria	108	39-9	S 68 58-3
	20	73	49-0		72	52-4	45-9	206	18-7	22-7	247	58-7	56-4	54	02-0	46-2	Avior	234	31-3	S 59 24-5
	21	88	51-4		87	52-8	47-1	221	19-9	23-1	263	01-3	56-4	69	04-2	46-3	Bellatrix	279	07-7	N 6 19-5
	22	103	53-9		102	53-2	48-4	236	21-0	23-4	278	03-8	56-3	84	06-5	46-4	Betelgeuse	271	37-3	N 7 24-2
	23	118	56-4		117	53-6	49-6	251	22-2	23-8	293	06-4	56-3	99	08-8	46-4				
TUESDAY	4 00	133	58-8		132	54-0	N 1 50-8	266	23-4	S 16 24-1	308	08-9	S 0 56-2	114	11-1	N 5 46-5	Canopus	264	10-6	S 52 40-7
	01	149	01-3		147	54-4	52-0	281	24-6	24-5	323	11-5	56-2	129	13-4	46-6	Capella	281	23-7	N 45 58-4
	02	164	03-8		162	54-8	53-2	296	25-8	24-9	338	14-1	56-1	144	15-7	46-7	Deneb	49	54-9	N 45 10-0
	03	179	06-2		177	55-2	54-4	311	26-9	25-2	353	16-6	56-1	159	18-0	46-8	Denebola	183	07-5	N 14 44-5
	04	194	08-7		192	55-6	55-7	326	28-1	25-6	8	19-2	56-0	174	20-3	46-8	Diphda	349	29-5	S 18 09-5
	05	209	11-1		207	56-0	56-9	341	29-3	25-9	23	21-8	55-9	189	22-6	46-9				
	06	224	13-6		222	56-4	N 1 58-1	356	30-5	S 16 26-3	38	24-3	S 0 55-9	204	24-9	N 5 47-0	Dubhe	194	31-6	N 61 54-9
	07	239	16-1		237	56-8	1 59-3	11	31-7	26-6	53	26-9	55-8	219	27-2	47-1	Elnath	278	54-7	N 28 35-2
	08	254	18-5		252	57-2	2 00-5	26	32-8	27-0	68	29-5	55-8	234	29-5	47-2	Eltanin	91	02-1	N 51 29-1
	09	269	21-0		267	57-7	01-7	41	34-0	27-3	83	32-0	55-7	249	31-7	47-2	Enif	34	20-3	N 9 43-8
	10	284	23-5		282	58-1	02-9	56	35-2	27-7	98	34-6	55-7	264	34-0	47-3	Fomalhaut	16	01-0	S 29 47-4
	11	299	25-9		297	58-5	04-1	71	36-4	28-0	113	37-2	55-6	279	36-3	47-4				
	12	314	28-4		312	58-9	N 2 05-4	86	37-6	S 16 28-4	128	39-7	S 0 55-5	294	38-6	N 5 47-5	Gacrux	172	38-3	S 56 56-3
	13	329	30-9		327	59-3	06-6	101	38-7	28-8	143	42-3	55-5	309	40-9	47-6	Gienah	176	26-6	S 17 22-3
	14	344	33-3		342	59-7	07-8	116	39-9	29-1	158	44-9	55-4	324	43-2	47-6	Hadar	149	35-7	S 60 13-3
	15	359	35-8		358	00-1	09-0	131	41-1	29-5	173	47-4	55-4	339	45-5	47-7	Hamal	328	38-7	N 23 19-1
	16	14	38-2		13	00-6	10-2	146	42-3	29-8	188	50-0	55-3	354	47-8	47-8	Kaus Aust.	84	28-5	S 34 24-2
	17	29	40-7		28	01-0	11-4	161	43-5	30-2	203	52-6	55-3	9	50-1	47-9				
	18	44	43-2		43	01-4	N 2 12-6	176	44-6	S 16 30-5	218	55-2	S 0 55-2	24	52-4	N 5 48-0	Kochab	137	18-0	N 74 16-5
	19	59	45-6		58	01-8	13-8	191	45-8	30-9	233	57-7	55-2	39	54-6	48-0	Markab	14	12-0	N 15 02-2
	20	74	48-1		73	02-2	15-1	206	47-0	31-2	249	00-3	55-1	54	56-9	48-1	Menkar	314	50-1	N 3 58-2
	21	89	50-6		88	02-7	16-3	221	48-2	31-6	264	02-9	55-0	69	59-2	48-2	Menkent	148	47-2	S 36 13-1
	22	104	53-0		103	03-1	17-5	236	49-4	31-9	279	05-4	55-0	85	01-5	48-3	Miaplacidus	221	46-3	S 69 35-3
	23	119	55-5		118	03-5	18-7	251	50-6	32-3	294	08-0	54-9	100	03-8	48-4				
WEDNESDAY	5 00	134	58-0		133	03-9	N 2 19-9	266	51-7	S 16 32-6	309	10-6	S 0 54-9	115	06-1	N 5 48-4	Mirfak	309	28-5	N 49 45-4
	01	150	00-4		148	04-4	21-1	281	52-9	33-0	324	13-1	54-8	130	08-4	48-5	Nunki	76	40-1	S 26 20-3
	02	165	02-9		163	04-8	22-3	296	54-1	33-3	339	15-7	54-8	145	10-7	48-6	Peacock	54	12-3	S 56 50-3
	03	180	05-3		178	05-2	23-5	311	55-3	33-7	354	18-3	54-7	160	13-0	48-7	Pollux	244	08-2	N 28 06-2
	04	195	07-8		193	05-7	24-7	326	56-5	34-0	9	20-9	54-6	175	15-2	48-8	Procyon	245	34-4	N 5 18-4
	05	210	10-3		208	06-1	26-0	341	57-7	34-4	24	23-4	54-6	190	17-5	48-9				
	06	225	12-7		223	06-5	N 2 27-2	356	58-8	S 16 34-7	39	26-0	S 0 54-5	205	19-8	N 5 48-9	Rasalhague	96	37-7	N 12 34-6
	07	240	15-2		238	07-0	28-4	12	00-0	35-1	54	28-6	54-5	220	22-1	49-0	Regulus	208	18-7	N 12 07-1
	08	255	17-7		253	07-4	29-6	27	01-2	35-4	69	31-2	54-4	235	24-4	49-1	Rigel	281	44-0	S 8 14-1
	09	270	20-1		268	07-8	30-8	42	02-4	35-8	84	33-7	54-3	250	26-7	49-2	Rigel Kent.	140	37-7	S 60 42-3
	10	285	22-6		283	08-3	32-0	57	03-6	36-1	99	36-3	54-3	265	29-0	49-3	Sabik	102	51-2	S 15 41-4
	11	300	25-1		298	08-7	33-2	72	04-8	36-5	114	38-9	54-2	280	31-3	49-3				
	12	315	27-5		313	09-1	N 2 34-4	87	06-0	S 16 36-8	129	41-5	S 0 54-2	295	33-5	N 5 49-4	Schedar	350	19-4	N 56 22-3
	13	330	30-0		328	09-6	35-6	102	07-1	37-2	144	44-0	54-1	310	35-8	49-5	Shaula	97	07-7	S 37 05-0
	14																			

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise										
		G.H.A.	Dec.	G.H.A.	°	Dec.	d		H.P.	Naut.		Civil	3	4	5	6						
d	h	°	'	°	'	°	'	'	°	h	m	h	m	h	m	h	m	h	m			
3	00	176	32.4	S 16	38.1	350	12.9	13.2	N 18	18.3	11.9	55.3	N 70	06 53	08 09	09 30	16 01	18 15	20 16	22 17		
	01	191	32.3		37.4	4	45.1	13.2		18	06.4	11.9	55.3	68	06 47	07 56	09 05	16 26	18 26	20 19	22 11	
	02	206	32.2		36.6	19	17.3	13.3		17	54.5	12.0	55.3	66	06 42	07 45	08 46	16 45	18 35	20 21	22 07	
	03	221	32.2		35.9	33	49.6	13.4		17	42.5	12.1	55.3	64	06 38	07 36	08 31	17 01	18 43	20 23	22 03	
	04	236	32.1		35.2	48	22.0	13.4		17	30.4	12.2	55.4	62	06 34	07 28	08 18	17 13	18 50	20 24	22 00	
	05	251	32.0		34.5	62	54.4	13.4		17	18.2	12.3	55.4	60	06 30	07 21	08 07	17 24	18 55	20 26	21 57	
	06	266	32.0	S 16	33.7	77	26.8	13.5	N 17	05.9	12.3	55.4	N 58	06 27	07 14	07 58	17 33	19 00	20 27	21 54		
	07	281	31.9		33.0	91	59.3	13.6		16	53.6	12.5	55.4	56	06 24	07 09	07 49	17 41	19 05	20 28	21 52	
	08	296	31.8		32.2	106	31.9	13.6		16	41.1	12.5	55.4	54	06 21	07 04	07 42	17 49	19 09	20 29	21 50	
	09	311	31.8		31.5	121	04.5	13.6		16	28.6	12.6	55.5	52	06 19	06 59	07 36	17 55	19 12	20 30	21 48	
MONDAY	10	326	31.7		30.8	135	37.1	13.7		16	16.0	12.6	55.5	50	06 16	06 55	07 29	18 01	19 16	20 31	21 46	
	11	341	31.6		30.0	150	09.8	13.7		16	03.4	12.8	55.5	45	06 11	06 46	07 17	18 13	19 23	20 32	21 43	
	12	356	31.6	S 16	29.3	164	42.5	13.8	N 15	50.6	12.8	55.5	N 40	06 05	06 37	07 06	18 23	19 29	20 34	21 40		
	13	11	31.5		28.6	179	15.3	13.8		15	37.8	12.9	55.5	35	06 00	06 30	06 57	18 32	19 34	20 35	21 37	
	14	26	31.4		27.8	193	48.1	13.8		15	24.9	12.9	55.5	30	05 55	06 24	06 49	18 40	19 38	20 36	21 35	
	15	41	31.4		27.1	208	20.9	13.9		15	12.0	13.1	55.6	20	05 45	06 12	06 34	18 53	19 46	20 38	21 31	
	16	56	31.3		26.4	222	53.8	14.0		14	58.9	13.1	55.6	N 10	05 35	06 00	06 22	19 04	19 52	20 40	21 28	
	17	71	31.3		25.6	237	26.8	14.0		14	45.8	13.2	55.6	0	05 24	05 49	06 10	19 15	19 58	20 41	21 25	
	18	86	31.2	S 16	24.9	251	59.8	14.0	N 14	32.6	13.2	55.6	S 10	05 11	05 37	05 59	19 25	20 05	20 43	21 22		
	19	101	31.1		24.1	266	32.8	14.0		14	19.4	13.3	55.6	20	04 55	05 23	05 46	19 37	20 11	20 45	21 19	
TUESDAY	20	116	31.1		23.4	281	05.8	14.1		14	06.1	13.4	55.7	30	04 35	05 05	05 31	19 49	20 19	20 47	21 15	
	21	131	31.0		22.7	295	38.9	14.2		13	52.7	13.5	55.7	35	04 22	04 55	05 22	19 57	20 23	20 48	21 13	
	22	146	30.9		21.9	310	12.1	14.2		13	39.2	13.5	55.7	40	04 06	04 43	05 12	20 05	20 28	20 49	21 11	
	23	161	30.9		21.2	324	45.3	14.2		13	25.7	13.6	55.7	45	03 47	04 28	05 01	20 15	20 33	20 51	21 08	
	00	176	30.8	S 16	20.4	339	18.5	14.2	N 13	12.1	13.6	55.7	S 50	03 21	04 09	04 47	20 26	20 40	20 53	21 05		
	01	191	30.8		19.7	353	51.7	14.3		12	58.5	13.8	55.8	52	03 07	04 00	04 40	20 32	20 43	20 53	21 03	
	02	206	30.7		18.9	8	25.0	14.3		12	44.7	13.7	55.8	54	02 52	03 50	04 32	20 38	20 46	20 54	21 02	
	03	221	30.6		18.2	22	58.3	14.4		12	31.0	13.9	55.8	56	02 33	03 38	04 24	20 44	20 50	20 55	21 00	
	04	236	30.6		17.5	37	31.7	14.4		12	17.1	13.9	55.8	58	02 09	03 24	04 15	20 51	20 54	20 56	20 58	
	05	251	30.5		16.7	52	05.1	14.4		12	03.2	13.9	55.8	S 60	01 33	03 08	04 04	21 00	20 59	20 57	20 56	
WEDNESDAY	06	266	30.5	S 16	16.0	66	38.5	14.4	N 11	49.3	14.0	55.8	Lat.		Sun-set		Twilight		Moonset			
	07	281	30.4		15.2	81	11.9	14.5		11	35.3	14.1	55.9									
	08	296	30.3		14.5	95	45.4	14.5		11	21.2	14.2	55.9									
	09	311	30.3		13.7	110	18.9	14.5		11	07.0	14.1	55.9									
	10	326	30.2		13.0	124	52.4	14.6		10	52.9	14.3	55.9									
	11	341	30.2		12.2	139	26.0	14.6		10	38.6	14.3	55.9									
	12	356	30.1	S 16	11.5	153	59.6	14.6	N 10	24.3	14.3	56.0	N 70	14 59	16 20	17 37	10 28	09 47	09 17	08 51		
	13	11	30.1		10.7	168	33.2	14.7		10	10.0	14.4	56.0	68	15 24	16 33	17 42	10 01	09 33	09 12	08 52	
	14	26	30.0		10.0	183	06.9	14.6		9	55.6	14.5	56.0	66	15 43	16 44	17 47	09 40	09 22	09 07	08 53	
	15	41	30.0		09.2	197	40.5	14.7		9	41.1	14.5	56.0	64	15 58	16 53	17 51	09 24	09 13	09 03	08 53	
THURSDAY	16	56	29.9		08.5	212	14.2	14.7		9	26.6	14.5	56.0	62	16 11	17 01	17 55	09 10	09 04	08 59	08 54	
	17	71	29.8		07.7	226	47.9	14.7		9	12.1	14.6	56.1	60	16 22	17 08	17 58	08 58	08 57	08 56	08 55	
	18	86	29.8	S 16	07.0	241	21.6	14.8	N	8	57.5	14.6	56.1	N 58	16 31	17 14	18 02	08 48	08 51	08 53	08 55	
	19	101	29.7		06.2	255	55.4	14.8		8	42.9	14.7	56.1	56	16 39	17 20	18 04	08 39	08 46	08 51	08 56	
	20	116	29.7		05.5	270	29.2	14.8		8	28.2	14.8	56.1	54	16 47	17 25	18 07	08 31	08 41	08 49	08 56	
	21	131	29.6		04.7	285	03.0	14.8		8	13.4	14.7	56.1	52	16 53	17 29	18 10	08 24	08 36	08 47	08 57	
	22	146	29.6		04.0	299	36.8	14.8		7	58.7	14.8	56.2	50	16 59	17 34	18 12	08 17	08 32	08 45	08 57	
	23	161	29.5		03.2	314	10.6	14.8		7	43.9	14.9	56.2	45	17 12	17 43	18 18	08 03	08 23	08 41	08 58	
	00	176	29.5	S 16	02.4	328	44.4	14.9	N	7	29.0	14.9	56.2	N 40	17 22	17 51	18 23	07 51	08 15	08 37	08 59	
	01	191	29.4		01.7	343	18.3	14.8		7	14.1	14.9	56.2	35	17 32	17 58	18 28	07 41	08 09	08 34	08 59	
02	206	29.4		00.9	357	52.1	14.9		6	59.2	15.0	56.2	30	17 40	18 05	18 33	07 33	08 03	08 32	09 00		
03	221	29.3		00.2	12	26.0	14.9		6	44.2	15.0	56.3	20	17 54	18 16	18 43	07 17	07 53	08 27	09 01		
04	236	29.3		15 59.4	26	59.9	14.9		6	29.2	15.1	56.3	N 10	18 06	18 28	18 53	07 04	07 44	08 23	09 01		
05	251	29.2		58.7	41	33.8	14.9		6	14.1	15.1	56.3	0	18 17	18 39	19 04	06 51	07 36	08 19	09 02		
FRIDAY	06	266	29.2	S 15	57.9	56	07.7	14.9	N	5	59.0	15.1	56.3	S 10	18 29	18 51	19 17	06 39	07 27	08 15	09 03	
	07	281	29.1		57.2	70	41.6	15.0		5	43.9	15.1	56.3	20	18 42	19 05	19 32	06 25	07 18	08 11	09 04	
	08	296	29.1		56.4	85	15.6	15.0		5	28.8	15.2	56.4	30	18 56	19 22	19 52	06 09	07 08	08 06	09 04	
	09	311	29.0		55.6	99	49.5	14.9		5	13.6	15.3	56.4	35	19 05	19 32	20 05	06 00	07 02	08 03	09 05	
	10	326	29.0		54.9	114	23.4	15.0		4	58.3	15.2	56.4	40	19 15	19 44	20 21	05 49	06 55	08 00	09 05	
	11	341	28.9		54.1	128	57.4	14.9		4	43.1	15.3	56.4	45	19 26	19 59	20 40	05 37	06 47	07 56	09 06	
	12	356	28.9	S 15	53.4	143	31.3	14.9	N	4	27.8	15.3	56.4	S 50	19 40	20 17	21 05	05 22	06 37	07 52	09 07	
	13	11	28.8		52.6	158	05.2	15.0		4	12.5	15.3	56.5	52	19 47	20 20						

G.M.T.		ARIES		VENUS -4.2		MARS +1.0		JUPITER -1.9		SATURN +0.8		STARS			
		G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d	h	°	'	°	°	'	°	'	°	'	°	'		°	'
600	01	135 57.1	133 14.5	N 2 48.9	267 20.2	S 16 41.0	310 12.4	S 0 53.4	116 01.0	N 5 50.4			Acamar	315 43.6	S 40 25.9
	02	150 59.6	148 14.9	50.1	282 21.4	41.4	325 15.0	53.4	131 03.3	50.5			Achernar	335 51.5	S 57 23.8
	03	166 02.0	163 15.4	51.3	297 22.6	41.7	340 17.5	53.3	146 05.6	50.6			Acrux	173 46.8	S 62 55.5
	04	181 04.5	178 15.8	52.5	312 23.7	42.1	355 20.1	53.3	161 07.8	50.7			Adhara	255 38.5	S 28 55.8
	05	196 07.0	193 16.3	53.7	327 24.9	42.4	10 22.7	53.2	176 10.1	50.7			Aldebaran	291 27.7	N 16 27.0
THURSDAY	06	211 09.4	208 16.7	54.9	342 26.1	42.8	25 25.3	53.1	191 12.4	50.8					
	07	226 11.9	223 17.2	N 2 56.1	357 27.3	S 16 43.1	40 27.9	S 0 53.1	206 14.7	N 5 50.9			Alioth	166 49.4	N 56 07.3
	08	241 14.3	238 17.6	57.3	12 28.5	43.5	55 30.4	53.0	221 17.0	51.0			Alkaid	153 24.8	N 49 27.4
	09	256 16.8	253 18.1	58.5	27 29.7	43.8	70 33.0	52.9	236 19.3	51.1			Al Na'ir	28 25.9	S 47 06.6
	10	271 19.3	268 18.5	2 59.7	42 30.9	44.1	85 35.6	52.9	251 21.5	51.1			Alnilam	276 20.1	S 1 13.3
	11	286 21.7	283 19.0	3 00.9	57 32.1	44.5	100 38.2	52.8	268 23.8	51.2			Alphard	218 28.7	S 8 31.4
	12	301 24.2	298 19.5	02.1	72 33.2	44.8	115 40.8	52.8	281 26.1	51.3					
	13	316 26.7	313 19.9	N 3 03.3	87 34.4	S 16 45.2	130 43.3	S 0 52.7	296 28.4	N 5 51.4			Alphecca	126 39.3	N 26 48.7
	14	331 29.1	328 20.4	04.5	102 35.6	45.5	145 45.9	52.6	311 30.7	51.5			Alpheratz	358 18.5	N 28 55.2
	15	346 31.6	343 20.8	05.7	117 36.8	45.9	160 48.5	52.6	326 33.0	51.6			Altair	62 41.2	N 8 46.9
	16	1 34.1	358 21.3	06.9	132 38.0	46.2	175 51.1	52.5	341 35.2	51.6			Ankaa	353 48.7	S 42 28.6
	17	16 36.5	13 21.8	08.1	147 39.2	46.6	190 53.7	52.4	356 37.5	51.7			Antares	113 07.5	S 26 22.0
	18	31 39.0	28 22.2	09.3	162 40.4	46.9	205 56.3	52.4	11 39.8	51.8					
	19	46 41.4	43 22.7	N 3 10.5	177 41.6	S 16 47.2	220 58.8	S 0 52.3	26 42.1	N 5 51.9			Arcturus	146 26.1	N 19 20.3
	20	61 43.9	58 23.2	11.7	192 42.8	47.6	236 01.4	52.3	41 44.4	52.0			Atria	108 39.9	S 68 58.3
	21	76 46.4	73 23.6	12.9	207 43.9	47.9	251 04.0	52.2	56 46.7	52.1			Avior	234 31.3	S 59 24.5
	22	91 48.8	88 24.1	14.1	222 45.1	48.3	266 06.6	52.1	71 48.9	52.1			Bellatrix	279 07.7	N 6 19.5
23	106 51.3	103 24.6	15.3	237 46.3	48.6	281 09.2	52.1	86 51.2	52.2			Betelgeuse	271 37.3	N 7 24.2	
24	121 53.8	118 25.0	16.5	252 47.5	49.0	296 11.8	52.0	101 53.5	52.3						
700	01	136 56.2	133 25.5	N 3 17.7	267 48.7	S 16 49.3	311 14.3	S 0 51.9	116 55.8	N 5 52.4			Canopus	264 10.6	S 52 40.8
	02	151 58.7	148 26.0	18.9	282 49.9	49.6	326 16.9	51.9	131 58.1	52.5			Capella	281 23.7	N 45 58.4
	03	167 01.2	163 26.5	20.1	297 51.1	50.0	341 19.5	51.8	147 00.4	52.6			Deneb	49 54.9	N 45 10.0
	04	182 03.6	178 26.9	21.3	312 52.3	50.3	356 22.1	51.8	162 02.6	52.6			Denebola	183 07.4	N 14 44.5
	05	197 06.1	193 27.4	22.5	327 53.5	50.7	11 24.7	51.7	177 04.9	52.7			Diphda	349 29.5	S 18 09.5
FRIDAY	06	212 08.6	208 27.9	23.7	342 54.7	51.0	26 27.3	51.6	192 07.2	52.8					
	07	227 11.0	223 28.4	N 3 24.9	357 55.8	S 16 51.4	41 29.9	S 0 51.6	207 09.5	N 5 52.9			Dubhe	194 31.6	N 61 54.9
	08	242 13.5	238 28.8	26.1	12 57.0	51.7	56 32.5	51.5	222 11.8	53.0			El Nath	278 54.7	N 28 35.2
	09	257 15.9	253 29.3	27.2	27 58.2	52.0	71 35.0	51.4	237 14.0	53.1			Eltanin	91 02.1	N 51 29.1
	10	272 18.4	268 29.8	28.4	42 59.4	52.4	86 37.6	51.4	252 16.3	53.1			Enif	34 20.3	N 9 43.8
	11	287 20.9	283 30.3	29.6	58 00.6	52.7	101 40.2	51.3	267 18.6	53.2			Fomalhaut	16 01.0	S 29 47.4
	12	302 23.3	298 30.8	30.8	73 01.8	53.1	116 42.8	51.2	282 20.9	53.3					
	13	317 25.8	313 31.3	N 3 32.0	88 03.0	S 16 53.4	131 45.4	S 0 51.2	297 23.2	N 5 53.4			Gacrux	172 38.3	S 56 56.3
	14	332 28.3	328 31.8	33.2	103 04.2	53.7	146 48.0	51.1	312 25.4	53.5			Gienah	176 26.6	S 17 22.3
	15	347 30.7	343 32.2	34.4	118 05.4	54.1	161 50.6	51.0	327 27.7	53.6			Hadar	149 35.7	S 60 13.3
	16	2 33.2	358 32.7	35.6	133 06.6	54.4	176 53.2	51.0	342 30.0	53.6			Hamal	328 38.7	N 23 19.1
	17	17 35.7	13 33.2	36.8	148 07.8	54.8	191 55.8	50.9	357 32.3	53.7			Kaus Aust.	84 28.5	S 34 24.2
	18	32 38.1	28 33.7	38.0	163 09.0	55.1	206 58.3	50.8	12 34.6	53.8					
	19	47 40.6	43 34.2	N 3 39.2	178 10.2	S 16 55.4	222 00.9	S 0 50.8	27 36.8	N 5 53.9			Kochab	137 17.9	N 74 16.5
	20	62 43.0	58 34.7	40.4	193 11.4	55.8	237 03.5	50.7	42 39.1	54.0			Markab	14 12.0	N 15 02.2
	21	77 45.5	73 35.2	41.6	208 12.6	56.1	252 06.1	50.7	57 41.4	54.1			Menkar	314 50.1	N 3 58.2
	22	92 48.0	88 35.7	42.7	223 13.7	56.5	267 08.7	50.6	72 43.7	54.1			Menkent	148 47.1	S 36 13.1
23	107 50.4	103 36.2	43.9	238 14.9	56.8	282 11.3	50.5	87 46.0	54.2			Miaplacidus	221 46.3	S 69 35.3	
24	122 52.9	118 36.7	45.1	253 16.1	57.1	297 13.9	50.5	102 48.2	54.3						
800	01	137 55.4	133 37.2	N 3 46.3	268 17.3	S 16 57.5	312 16.5	S 0 50.4	117 50.5	N 5 54.4			Mirfak	309 28.5	N 49 45.4
	02	152 57.8	148 37.7	47.5	283 18.5	57.8	327 19.1	50.3	132 52.8	54.5			Nunki	76 40.0	S 26 20.3
	03	168 00.3	163 38.2	48.7	298 19.7	58.2	342 21.7	50.3	147 55.1	54.6			Peacock	54 12.2	S 56 50.3
	04	183 02.8	178 38.7	49.9	313 20.9	58.5	357 24.3	50.2	162 57.4	54.7			Pollux	244 08.2	N 28 06.2
	05	198 05.2	193 39.2	51.1	328 22.1	58.8	12 26.9	50.1	177 59.6	54.7			Procyon	245 34.4	N 5 18.4
SATURDAY	06	213 07.7	208 39.7	52.3	343 23.3	59.2	27 29.4	50.1	193 01.9	54.8					
	07	228 10.1	223 40.2	N 3 53.4	358 24.5	S 16 59.5	42 32.0	S 0 50.0	208 04.2	N 5 54.9			Rasalhague	96 37.7	N 12 34.6
	08	243 12.6	238 40.7	54.6	13 25.7	16 59.8	57 34.6	49.9	223 06.5	55.0			Regulus	208 18.7	N 12 07.1
	09	258 15.1	253 41.2	55.8	28 26.9	17 00.2	72 37.2	49.9	238 08.8	55.1			Rigel	281 44.0	S 8 14.2
	10	273 17.5	268 41.7	57.0	43 28.1	00.5	87 39.8	49.8	253 11.0	55.2			Rigel Kent.	140 37.6	S 60 42.3
	11	288 20.0	283 42.2	58.2	58 29.3	00.9	102 42.4	49.7	268 13.3	55.2			Sabik	102 51.1	S 15 41.4
	12	303 22.5	298 42.7	3 59.4	73 30.5	01.2	117 45.0	49.7	283 15.6	55.3					
	13	318 24.9	313 43.2	N 4 00.6	88 31.7	S 17 01.5	132 47.6	S 0 49.6	298 17.9	N 5 55.4			Schedar	350 19.4	N 56 22.3
	14	333 27.4	328 43.7	01.8	103 32.9	01.9	147 50.2	49.5	313 20.1	55.5			Shaula	97 07.7	S 37 05.0
	15	348 29.9	343 44.2	02.9	118 34.1	02.2	162 52.8	49.4	328 22.4	55.6			Sirius	259 03.0	S 16 40.4
	16	3 32.3	358 44.8	04.1	133 35.3	02.5	177 55.4	49.4	343 24.7	55.7			Spica	159 06.4	N 11 00.1
	17	18 34.8	13 45.3	05.3	148 36.5	02.9	192 58.0	49.3	358 27.0	55.8			Suhail	223 16.8	S 43 18.4
	18	33 37.3	28 45.8	06.5	163 37.7	03.2	208 00.6	49.2	13 29.2	55.8					
	19	48 39.7	43 46.3	N 4 07.7	178 38.9	S 17 03.5	223 03.2	S 0 49.2	28 31.5	N 5 55.9			Vega	81 02.0	N 38 44.9
	20	63 42.2	58 46.8	08.9	193 40.1	03.9	238 05.8	49.1	43 33.8	56.0			Zuben'ubi	137 42.5	S 15 55.0
	21	78 44.6	73 47.3	10.0	208 41.3	04.2	253 08.4	49.0	58 36.1	56.1					
	22	93 47.1	88 47.9	11.2	223 42.5	04.5	268 11.0	49.0	73 38.3	56.2					
23	108 49.6	103 48.4	12.4	238 43.7	04.9	283 13.6	48.9	88 40.6	56.3			Venus	356 29.3	15 06	
24	123 52.0	118 48.9	13.6	253 44.9	05.2	298 16.2	48.8	103 42.9	56.3			Mars	130 52.5	6 08	
													Jupiter	174 18.1	3 14
													Saturn	339 59.6	16 10
Mer. Pass. 14 49.8		v	0.5	d 1.2	v	1.2	d 0.3	v	2.6	d 0.1	v	2.3	d 0.1		

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise								
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	6	7	8	9				
d	h	°	'	°	'	°	'	°	'	h	m	h	m	h	m	h	m			
6	00	176	28.3	S 15	44.2	318	18.4	14.8	N	1 22.5	15.5	56.7	N 72	06 48	08 12	09 44	22 23	24 47	00 47	■
	01	191	28.3		43.4	332	52.2	14.9		1 07.0	15.6	56.7	N 70	06 43	07 58	09 15	22 17	24 27	00 27	03 10
	02	206	28.2		42.7	347	26.1	14.8		0 51.4	15.6	56.7	68	06 38	07 46	08 53	22 11	24 11	00 11	02 30
	03	221	28.2	••	41.9	1 59.9	14.8			0 35.8	15.6	56.8	66	06 34	07 36	08 36	22 07	23 58	26 03	02 03
	04	236	28.1		41.1	16 33.7	14.9			0 20.2	15.7	56.8	64	06 30	07 28	08 22	22 03	23 48	25 42	01 42
	05	251	28.1		40.4	31 07.6	14.7	N	0 04.5	15.6	56.8		62	06 27	07 20	08 10	22 00	23 39	25 26	01 26
	06	266	28.1	S 15	39.6	45 41.3	14.8	S	0 11.1	15.6	56.8		60	06 24	07 14	08 00	21 57	23 31	25 12	01 12
	07	281	28.0		38.8	60 15.1	14.8			0 26.7	15.7	56.8	N 58	06 22	07 08	07 51	21 54	23 25	25 00	01 00
	08	296	28.0		38.1	74 48.9	14.7			0 42.4	15.7	56.9	56	06 19	07 03	07 43	21 52	23 19	24 50	00 50
	09	311	27.9	••	37.3	89 22.6	14.7			0 58.1	15.6	56.9	54	06 17	06 59	07 36	21 50	23 14	24 41	00 41
	10	326	27.9		36.5	103 56.3	14.7			1 13.7	15.7	56.9	52	06 14	06 54	07 30	21 48	23 09	24 34	00 34
	11	341	27.8		35.8	118 30.0	14.6			1 29.4	15.7	56.9	50	06 12	06 50	07 25	21 46	23 05	24 26	00 26
	12	356	27.8	S 15	35.0	133 03.6	14.6	S	1 45.1	15.7	56.9		45	06 07	06 42	07 13	21 43	22 56	24 11	00 11
	13	11	27.8		34.2	147 37.2	14.6			2 00.8	15.6	57.0	N 40	06 02	06 34	07 03	21 40	22 48	23 59	25 13
	14	26	27.7		33.4	162 10.8	14.6			2 16.4	15.7	57.0	35	05 58	06 28	06 54	21 37	22 42	23 49	24 59
	15	41	27.7	••	32.7	176 44.4	14.5			2 32.1	15.7	57.0	30	05 53	06 22	06 47	21 35	22 36	23 40	24 47
	16	56	27.7		31.9	191 17.9	14.5			2 47.8	15.7	57.0	20	05 44	06 11	06 33	21 31	22 26	23 24	24 26
	17	71	27.6		31.1	205 51.4	14.5			3 03.5	15.7	57.1	N 10	05 35	06 00	06 22	21 28	22 18	23 11	24 07
	18	86	27.6	S 15	30.3	220 24.9	14.4	S	3 19.2	15.7	57.1		0	05 24	05 49	06 11	21 25	22 10	22 58	23 50
	19	101	27.5		29.6	234 58.3	14.4			3 34.9	15.6	57.1	S 10	05 12	05 38	06 00	21 22	22 02	22 46	23 34
	20	116	27.5		28.8	249 31.7	14.4			3 50.5	15.7	57.1	20	04 57	05 24	05 47	21 19	21 54	22 33	23 16
	21	131	27.5	••	28.0	264 05.1	14.3			4 06.2	15.7	57.1	30	04 38	05 08	05 34	21 15	21 45	22 18	22 56
	22	146	27.4		27.2	278 38.4	14.3			4 21.9	15.6	57.2	35	04 26	04 58	05 26	21 13	21 39	22 09	22 44
	23	161	27.4		26.5	293 11.7	14.2			4 37.5	15.7	57.2	40	04 11	04 47	05 16	21 11	21 33	21 59	22 30
	24					293 11.7	14.2			4 37.5	15.7	57.2	45	03 52	04 33	05 05	21 08	21 27	21 48	22 14
7	00	176	27.4	S 15	25.7	307 44.9	14.2	S	4 53.2	15.6	57.2	S 50	03 28	04 15	04 52	21 05	21 18	21 34	21 55	
	01	191	27.3		24.9	322 18.1	14.2		5 08.8	15.6	57.2	52	03 16	04 07	04 46	21 03	21 15	21 28	21 46	
	02	206	27.3		24.1	336 51.3	14.1		5 24.4	15.6	57.2	54	03 01	03 57	04 39	21 02	21 10	21 21	21 36	
	03	221	27.3	••	23.4	351 24.4	14.1		5 40.0	15.6	57.3	56	02 44	03 46	04 31	21 00	21 06	21 13	21 24	
	04	236	27.2		22.6	5 57.5	14.0		5 55.6	15.6	57.3	58	02 22	03 33	04 22	20 58	21 01	21 05	21 11	
	05	251	27.2		21.8	20 30.5	13.9		6 11.2	15.6	57.3	S 60	01 53	03 18	04 12	20 56	20 55	20 55	20 56	
	06	266	27.1	S 15	21.0	35 03.4	14.0	S	6 26.8	15.5	57.3									
	07	281	27.1		20.2	49 36.4	13.8		6 42.3	15.5	57.4	Lat.	Sun-set	Twilight		Moonset				
	08	296	27.1		19.5	64 09.2	13.8		6 57.8	15.5	57.4			Civil	Naut.	6	7	8	9	
	09	311	27.0	••	18.7	78 42.0	13.8		7 13.3	15.5	57.4	°	h m	h m	h m	h m	h m	h m	h m	
	10	326	27.0		17.9	93 14.8	13.7		7 28.8	15.5	57.4	N 72	14 45	16 18	17 42	08 49	08 13	07 25	■	
	11	341	27.0		17.1	107 47.5	13.6		7 44.3	15.4	57.4	N 70	15 15	16 32	17 47	08 51	08 23	07 48	06 47	
	12	356	27.0	S 15	16.3	122 20.1	13.6	S	7 59.7	15.5	57.5	68	15 37	16 44	17 52	08 52	08 31	08 06	07 29	
	13	11	26.9		15.6	136 52.7	13.5		8 15.2	15.4	57.5	66	15 54	16 53	17 56	08 53	08 38	08 21	07 58	
	14	26	26.9		14.8	151 25.2	13.5		8 30.6	15.3	57.5	64	16 08	17 02	17 59	08 53	08 44	08 33	08 19	
	15	41	26.9	••	14.0	165 57.7	13.4		8 45.9	15.4	57.5	62	16 20	17 09	18 02	08 54	08 49	08 43	08 37	
	16	56	26.8		13.2	180 30.1	13.3		9 01.3	15.3	57.6	60	16 30	17 15	18 05	08 55	08 53	08 52	08 52	
	17	71	26.8		12.4	195 02.4	13.3		9 16.6	15.2	57.6	N 58	16 38	17 21	18 08	08 55	08 57	09 00	09 05	
	18	86	26.8	S 15	11.6	209 34.7	13.2	S	9 31.8	15.3	57.6	56	16 46	17 26	18 10	08 56	09 01	09 07	09 16	
	19	101	26.7		10.8	224 06.9	13.2		9 47.1	15.2	57.6	54	16 53	17 30	18 12	08 56	09 04	09 13	09 25	
	20	116	26.7		10.1	238 39.1	13.0		10 02.3	15.2	57.6	52	16 59	17 35	18 15	08 57	09 07	09 19	09 34	
	21	131	26.7	••	09.3	253 11.1	13.0		10 17.5	15.1	57.7	50	17 04	17 38	18 17	08 57	09 10	09 24	09 42	
	22	146	26.7		8.5	267 43.1	13.0		10 32.6	15.1	57.7	45	17 16	17 47	18 22	08 58	09 16	09 35	09 59	
	23	161	26.6		7.7	282 15.1	12.8		10 47.7	15.1	57.7	N 40	17 26	17 54	18 26	08 59	09 20	09 44	10 12	
	8	00	176	26.6	S 15	06.9	296 46.9	12.8	S	11 02.8	15.0	57.7	35	17 35	18 01	18 31	08 59	09 25	09 52	10 24
01		191	26.6		06.1	311 18.7	12.7		11 17.8	14.9	57.8	30	17 42	18 07	18 35	09 00	09 28	09 59	10 34	
02		206	26.5		05.3	325 50.4	12.6		11 32.7	15.0	57.8	20	17 55	18 18	18 44	09 01	09 35	10 12	10 52	
03		221	26.5	••	04.5	340 22.0	12.6		11 47.7	14.9	57.8	N 10	18 07	18 29	18 54	09 01	09 41	10 22	11 08	
04		236	26.5		03.8	354 53.6	12.5		12 02.6	14.8	57.8	0	18 18	18 39	19 04	09 02	09 46	10 32	11 22	
05		251	26.5		03.0	9 25.1	12.3		12 17.4	14.8	57.8	S 10	18 29	18 50	19 16	09 03	09 52	10 43	11 37	
06		266	26.4	S 15	02.2	23 56.4	12.4	S	12 32.2	14.8	57.9	20	18 41	19 04	19 31	09 04	09 57	10 53	11 53	
07		281	26.4		01.4	38 27.8	12.2		12 47.0	14.7	57.9	30	18 54	19 20	19 50	09 04	10 04	11 06	12 11	
08		296	26.4	15 00.6		52 59.0	12.1		13 01.7	14.6	57.9	35	19 02	19 29	20 02	09 05	10 08	11 13	12 22	
09		311	26.4	14 59.8		67 30.1	12.1		13 16.3	14.6	57.9	40	19 12	19 41	20 17	09 05	10 12	11 22	12 34	
10		326	26.3		59.0	82 01.2	12.0		13 30.9	14.5	58.0	45	19 22	19 55	20 35	09 06	10 17	11 31	12 49	
11		341	26.3		58.2	96 32.2	11.8		13 45.4	14.5	58.0	S 50	19 35	20 12	20 59	09 07	10 23	11 43	13 07	
12		356	26.3	S 14	57.4	111 03.0	11.8	S	13 59.9	14.4	58.0	52	19 41	20 20	21 11	09 07	10 26	11 49	13 15	
13																				

	ARIES	VENUS -4.2	MARS +0.9	JUPITER -1.9	SATURN +0.8	STARS			
G.M.T.	G.H.A.	G.H.A. Dec.	G.H.A. Dec.	G.H.A. Dec.	G.H.A. Dec.	Name	S.H.A.	Dec.	
d h	° ' "	° ' " °	° ' " °	° ' " °	° ' " °		° ' "	° ' "	
SUNDAY	9 00	138 54.5	133 49.4 N 4 14.8	268 46.1 S 17 05.6	313 18.8 S 0 48.8	118 45.2 N 5 56.4	Acamar	315 43.6 S 40 25.9	
	01	153 57.0	148 49.9 16.0	283 47.3 05.9	328 21.4 48.7	133 47.5 56.5	Achernar	335 51.5 S 57 23.8	
	02	168 59.4	163 50.5 17.1	298 48.5 06.2	343 24.0 48.6	148 49.7 56.6	Acruz	173 46.7 S 62 55.5	
	03	184 01.9	178 51.0 18.3	313 49.7 06.6	358 26.6 48.5	163 52.0 56.7	Adhara	255 38.5 S 28 55.8	
	04	199 04.4	193 51.5 19.5	328 50.9 06.9	13 29.2 48.5	178 54.3 56.8	Aldebaran	291 27.7 N 16 27.0	
	05	214 06.8	208 52.0 20.7	343 52.1 07.2	28 31.8 48.4	193 56.6 56.9			
	06	229 09.3	223 52.6 N 4 21.9	358 53.3 S 17 07.5	43 34.4 S 0 48.3	208 58.8 N 5 56.9	Alioth	166 49.3 N 56 07.3	
	07	244 11.8	238 53.1 23.0	13 54.5 07.9	58 37.0 48.3	224 01.1 57.0	Alkaid	153 24.8 N 49 27.6	
	08	259 14.2	253 53.6 24.2	28 55.7 08.2	73 39.6 48.2	239 03.4 57.1	Al Na'ir	28 25.9 S 47 06.9	
	09	274 16.7	268 54.2 25.4	43 56.9 08.5	88 42.2 48.1	254 05.7 57.2	Alnilam	276 20.1 S 1 13.2	
	10	289 19.1	283 54.7 26.6	58 58.1 08.9	103 44.8 48.1	269 07.9 57.3	Alphard	218 28.7 S 8 31.4	
	11	304 21.6	298 55.2 27.8	73 59.3 09.2	118 47.4 48.0	284 10.2 57.4			
	12	319 24.1	313 55.8 N 4 28.9	89 00.5 S 17 09.5	133 50.0 S 0 47.9	299 12.5 N 5 57.5	Alphecca	126 39.3 N 26 48.7	
	13	334 26.5	328 56.3 30.1	104 01.7 09.9	148 52.6 47.8	314 14.8 57.5	Alpheratz	358 18.6 N 28 55.2	
	14	349 29.0	343 56.8 31.3	119 02.9 10.2	163 55.2 47.8	329 17.0 57.6	Altair	62 41.2 N 8 46.9	
	15	4 31.5	358 57.4 32.5	134 04.1 10.5	178 57.8 47.7	344 19.3 57.7	Ankaa	353 48.7 S 42 28.6	
	16	19 33.9	13 57.9 33.6	149 05.3 10.9	194 00.4 47.6	359 21.6 57.8	Antares	113 07.5 S 26 22.0	
	17	34 36.4	28 58.5 34.8	164 06.5 11.2	209 03.0 47.6	14 23.8 57.9			
	18	49 38.9	43 59.0 N 4 36.0	179 07.7 S 17 11.5	224 05.6 S 0 47.5	29 26.1 N 5 58.0	Arcturus	146 26.1 N 19 20.3	
	19	64 41.3	58 59.5 37.2	194 08.9 11.9	239 08.2 47.4	44 28.4 58.1	Atria	108 39.8 S 68 58.3	
	20	79 43.8	74 00.1 38.3	209 10.1 12.2	254 10.8 47.3	59 30.7 58.1	Avior	234 31.3 S 59 24.6	
	21	94 46.3	89 00.6 39.5	224 11.3 12.5	269 13.4 47.3	74 32.9 58.2	Bellatrix	279 07.7 N 6 19.5	
	22	109 48.7	104 01.2 40.7	239 12.5 12.8	284 16.0 47.2	89 35.2 58.3	Betelgeuse	271 37.3 N 7 24.2	
	23	124 51.2	119 01.7 41.9	254 13.7 13.2	299 18.6 47.1	104 37.5 58.4			
MONDAY	10 00	139 53.6	134 02.3 N 4 43.0	269 14.9 S 17 13.5	314 21.2 S 0 47.1	119 39.8 N 5 58.5	Canopus	264 10.6 S 52 40.8	
	01	154 56.1	149 02.8 44.2	284 16.1 13.8	329 23.8 47.0	134 42.0 58.6	Capella	281 23.7 N 45 58.4	
	02	169 58.6	164 03.4 45.4	299 17.3 14.2	344 26.5 46.9	149 44.3 58.7	Deneb	49 54.9 N 45 09.9	
	03	185 01.0	179 03.9 46.6	314 18.5 14.5	359 29.1 46.8	164 46.6 58.8	Denebola	183 07.4 N 14 44.5	
	04	200 03.5	194 04.5 47.7	329 19.7 14.8	14 31.7 46.8	179 48.9 58.8	Diphda	349 29.5 S 18 09.5	
	05	215 06.0	209 05.0 48.9	344 20.9 15.1	29 34.3 46.7	194 51.1 58.9			
	06	230 08.4	224 05.6 N 4 50.1	359 22.1 S 17 15.5	44 36.9 S 0 46.6	209 53.4 N 5 59.0	Dubhe	194 31.6 N 61 54.9	
	07	245 10.9	239 06.1 51.2	14 23.3 15.8	59 39.5 46.6	224 55.7 59.1	Elnath	278 54.7 N 28 35.2	
	08	260 13.4	254 06.7 52.4	29 24.5 16.1	74 42.1 46.5	239 57.9 59.2	Eltanin	91 02.0 N 51 29.1	
	09	275 15.8	269 07.3 53.6	44 25.7 16.5	89 44.7 46.4	255 00.2 59.3	Enif	34 20.3 N 9 43.8	
	10	290 18.3	284 07.8 54.8	59 26.9 16.8	104 47.3 46.3	270 02.5 59.4	Fomalhaut	16 01.0 S 29 47.4	
	11	305 20.8	299 08.4 55.9	74 28.2 17.1	119 49.9 46.3	285 04.8 59.4			
	12	320 23.2	314 08.9 N 4 57.1	89 29.4 S 17 17.4	134 52.5 S 0 46.2	300 07.0 N 5 59.5	Gacrux	172 38.2 S 56 56.3	
	13	335 25.7	329 09.5 58.3	104 30.6 17.8	149 55.1 46.1	315 09.3 59.6	Gienah	176 26.6 S 17 22.3	
	14	350 28.1	344 10.1 4 59.4	119 31.8 18.1	164 57.8 46.0	330 11.6 59.7	Hadar	149 35.6 S 60 13.3	
	15	5 30.6	359 10.6 5 00.6	134 33.0 18.4	180 00.4 46.0	345 13.8 59.8	Hamal	328 38.7 N 23 19.1	
	16	20 33.1	14 11.2 01.8	149 34.2 18.8	195 03.0 45.9	0 16.1 5 59.9	Kaus Aust.	84 28.4 S 34 24.2	
	17	35 35.5	29 11.8 02.9	164 35.4 19.1	210 05.6 45.8	15 18.4 6 00.0			
	18	50 38.0	44 12.3 N 5 04.1	179 36.6 S 17 19.4	225 08.2 S 0 45.7	30 20.6 N 6 00.1	Kochab	137 17.9 N 74 16.5	
	19	65 40.5	59 12.9 05.3	194 37.8 19.7	240 10.8 45.7	45 22.9 00.1	Markab	14 12.0 N 15 02.2	
	20	80 42.9	74 13.5 06.4	209 39.0 20.1	255 13.4 45.6	60 25.2 00.2	Menkar	314 50.1 N 3 58.2	
	21	95 45.4	89 14.0 07.6	224 40.2 20.4	270 16.0 45.5	75 27.5 00.3	Menkent	148 47.1 S 36 13.1	
	22	110 47.9	104 14.6 08.8	239 41.4 20.7	285 18.6 45.4	90 29.7 00.4	Miaplacidus	221 46.3 S 69 35.3	
	23	125 50.3	119 15.2 09.9	254 42.6 21.0	300 21.2 45.4	105 32.0 00.5			
TUESDAY	11 00	140 52.8	134 15.8 N 5 11.1	269 43.8 S 17 21.4	315 23.9 S 0 45.3	120 34.3 N 6 00.6	Mirfak	309 28.5 N 49 45.4	
	01	155 55.3	149 16.3 12.3	284 45.1 21.7	330 26.5 45.2	135 36.5 00.7	Nunki	76 40.0 S 26 20.3	
	02	170 57.7	164 16.9 13.4	299 46.3 22.0	345 29.1 45.1	150 38.8 00.8	Peacock	54 12.2 S 56 50.2	
	03	186 00.2	179 17.5 14.6	314 47.5 22.3	0 31.7 45.1	165 41.1 00.8	Pollux	244 08.2 N 28 06.2	
	04	201 02.6	194 18.1 15.7	329 48.7 22.7	15 34.3 45.0	180 43.3 00.9	Procyon	245 34.4 N 5 18.4	
	05	216 05.1	209 18.6 16.9	344 49.9 23.0	30 36.9 44.9	195 45.6 01.0			
	06	231 07.6	224 19.2 N 5 18.1	359 51.1 S 17 23.3	45 39.5 S 0 44.8	210 47.9 N 6 01.1	Rasalhague	96 37.7 N 12 34.5	
	07	246 10.0	239 19.8 19.2	14 52.3 23.6	60 42.2 44.8	225 50.2 01.2	Regulus	208 18.7 N 12 07.1	
	08	261 12.5	254 20.4 20.4	29 53.5 23.9	75 44.8 44.7	240 52.4 01.3	Rigel	281 44.0 S 8 14.2	
	09	276 15.0	269 21.0 21.6	44 54.7 24.3	90 47.4 44.6	255 54.7 01.4	Rigel Kent.	140 37.6 S 60 42.3	
	10	291 17.4	284 21.6 22.7	59 55.9 24.6	105 50.0 44.5	270 57.0 01.5	Sabik	102 51.1 S 15 41.5	
	11	306 19.9	299 22.1 23.9	74 57.1 24.9	120 52.6 44.5	285 59.2 01.6			
	12	321 22.4	314 22.7 N 5 25.0	89 58.4 S 17 25.2	135 55.2 S 0 44.4	301 01.5 N 6 01.6	Schedar	350 19.5 N 56 22.3	
	13	336 24.8	329 23.3 26.2	104 59.6 25.6	150 57.8 44.3	316 03.8 01.7	Shaula	97 07.6 S 37 05.0	
	14	351 27.3	344 23.9 27.4	120 00.8 25.9	166 00.5 44.2	331 06.0 01.8	Sirius	259 03.0 S 16 40.4	
	15	6 29.8	359 24.5 28.5	135 02.0 26.2	181 03.1 44.2	346 08.3 01.9	Spica	159 06.4 S 11 00.1	
	16	21 32.2	14 25.1 29.7	150 03.2 26.5	196 05.7 44.1	1 10.6 02.0	Suhail	223 16.8 S 43 18.4	
	17	36 34.7	29 25.7 30.8	165 04.4 26.9	211 08.3 44.0	16 12.8 02.1			
	18	51 37.1	44 26.3 N 5 32.0	180 05.6 S 17 27.2	226 10.9 S 0 43.9	31 15.1 N 6 02.2	Vega	81 02.0 N 38 44.9	
	19	66 39.6	59 26.9 33.1	195 06.8 27.5	241 13.5 43.9	46 17.4 02.3	Zuben'ubi	137 42.5 S 15 55.0	
	20	81 42.1	74 27.5 34.3	210 08.1 27.8	256 16.2 43.8	61 19.6 02.3		S.H.A.	Mer. Pass.
	21	96 44.5	89 28.1 35.5	225 09.3 28.1	271 18.8 43.7	76 21.9 02.4		° ' "	h m
	22	111 47.0	104 28.7 36.6	240 10.5 28.5	286 21.4 43.6	91 24.2 02.5	Venus	354 08.7 15 03	
	23	126 49.5	119 29.3 37.8	255 11.7 28.8	301 24.0 43.5	106 26.4 02.6	Mars	129 21.3 6 03	
						Jupiter	174 27.6 3 02		
						Saturn	339 46.2 15 59		
Mer. Pass. 14 38-0	v 0.6 d 1.2	v 1.2 d 0.3	v 2.6 d 0.1	v 2.3 d 0.1					

G.M.T.	SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise				
	G.H.A.	Dec.	G.H.A.	°	Dec.	d	H.P.		Naut.	Civil		9	10	11	12	
											h m	h m	h m	h m	h m	h m
d h	°	°	°		°			°	h m	h m	h m	h m	h m	h m	h m	h m
9	00	176 26.0 S 14 47.9	285 06.3	10.6	S 16 48.7	13.6	58.3	N 70	06 32	07 46	08 59	03 10	■	■	■	■
	01	191 26.0 47.1	299 35.9	10.6	17 02.3	13.6	58.3	68	06 29	07 35	08 40	02 30	■	■	■	■
	02	206 26.0 46.3	314 05.5	10.4	17 15.9	13.4	58.3	66	06 25	07 27	08 25	02 03	04 46	■	■	■
	03	221 26.0 . 45.5	328 34.9	10.3	17 29.3	13.4	58.3	64	06 23	07 19	08 12	01 42	03 55	■	■	■
	04	236 26.0 44.7	343 04.2	10.2	17 42.7	13.3	58.4	62	06 20	07 13	08 01	01 26	03 24	05 40	■	■
	05	251 25.9 43.9	357 33.4	10.1	17 56.0	13.2	58.4	60	06 18	07 07	07 52	01 12	03 01	04 56	06 44	■
	06	266 25.9 S 14 43.1	12 02.5	10.0	S 18 09.2	13.1	58.4	N 58	06 16	07 02	07 44	01 00	02 42	04 27	06 02	■
	07	281 25.9 42.3	200 10.6	9.9	18 22.3	13.0	58.4	56	06 14	06 57	07 37	00 50	02 27	04 05	05 34	■
	08	296 25.9 41.5	41 00.4	9.8	18 35.3	13.0	58.5	54	06 12	06 53	07 31	00 41	02 14	03 47	05 12	■
	S 09	311 25.9 . 40.7	55 29.2	9.6	18 48.3	12.8	58.5	52	06 10	06 49	07 25	00 34	02 02	03 31	04 53	■
U 10	326 25.9 39.9	69 57.8	9.6	19 01.1	12.8	58.5	50	06 08	06 46	07 20	00 26	01 52	03 18	04 38	■	
N 11	341 25.8 39.1	84 26.4	9.4	19 13.9	12.7	58.5	45	06 04	06 38	07 09	00 11	01 30	02 51	04 07	■	
D 12	356 25.8 S 14 38.3	98 54.8	9.3	S 19 26.6	12.5	58.5	N 40	05 59	06 31	06 59	25 13	01 13	02 29	03 43	■	
	A 13	11 25.8 37.5	113 23.1	9.2	19 39.1	12.5	58.6	35	05 55	06 25	06 51	24 59	00 59	02 11	03 23	■
	Y 14	26 25.8 36.7	127 51.3	9.1	19 51.6	12.3	58.6	30	05 51	06 19	06 44	24 47	00 47	01 56	03 06	■
	15	41 25.8 . 35.8	142 19.4	9.0	20 03.9	12.3	58.6	20	05 43	06 09	06 32	24 26	00 26	01 30	02 37	■
	16	56 25.8 35.0	156 47.4	8.9	20 16.2	12.2	58.6	N 10	05 35	06 00	06 21	24 07	00 07	01 08	02 13	■
	17	71 25.8 34.2	171 15.3	8.7	20 28.4	12.0	58.7	0	05 25	05 49	06 11	23 50	24 48	00 48	01 50	■
	18	86 25.7 S 14 33.4	185 43.0	8.6	S 20 40.4	12.0	58.7	S 10	05 13	05 39	06 00	23 34	24 28	00 28	01 27	■
	19	101 25.7 32.6	200 10.6	8.5	20 52.4	11.8	58.7	20	04 59	05 26	05 49	23 16	24 06	00 06	01 03	■
	20	116 25.7 31.8	214 38.1	8.4	21 04.2	11.7	58.7	30	04 41	05 11	05 36	22 56	23 41	24 35	00 35	■
	21	131 25.7 . 31.0	229 05.5	8.3	21 15.9	11.6	58.7	35	04 29	05 02	05 29	22 44	23 26	24 19	00 19	■
22	146 25.7 30.2	243 32.8	8.1	21 27.5	11.5	58.8	40	04 15	04 51	05 20	22 30	23 09	23 59	25 02	■	
23	161 25.7 29.4	257 59.9	8.1	21 39.0	11.4	58.8	45	03 58	04 37	05 10	22 14	22 49	23 36	24 38	■	
10	00	176 25.7 S 14 28.6	272 27.0	7.9	S 21 50.4	11.3	58.8	S 50	03 35	04 21	04 57	21 55	22 24	23 06	24 07	■
	01	191 25.7 27.8	286 53.9	7.8	22 01.7	11.1	58.8	52	03 23	04 13	04 51	21 46	22 12	22 52	23 51	■
	02	206 25.6 27.0	301 20.7	7.6	22 12.8	11.1	58.9	54	03 10	04 04	04 45	21 36	21 58	22 35	23 33	■
	03	221 25.6 . 26.2	315 47.3	7.6	22 23.9	10.9	58.9	56	02 54	03 54	04 38	21 24	21 42	22 15	23 11	■
	04	236 25.6 25.4	330 13.9	7.4	22 34.8	10.7	58.9	58	02 35	03 42	04 30	21 11	21 24	21 49	22 44	■
	05	251 25.6 24.5	344 40.3	7.3	22 45.5	10.7	58.9	S 60	02 09	03 28	04 21	20 56	21 00	21 15	22 03	■
	06	266 25.6 S 14 23.7	359 06.6	7.2	S 22 56.2	10.5	58.9									
	07	281 25.6 22.9	13 32.8	7.1	23 06.7	10.4	59.0	Lat.	Sun-set	Twilight		Moonset				
	08	296 25.6 22.1	27 58.9	6.9	23 17.1	10.2	59.0			Civil	Naut.	9	10	11	12	
	M 09	311 25.6 . 21.3	42 24.8	6.9	23 27.3	10.2	59.0					h m	h m	h m	h m	
10	326 25.6 20.5	56 50.7	6.7	23 37.5	10.0	59.0					h m	h m	h m	h m		
N 11	341 25.6 19.7	71 16.4	6.5	23 47.5	9.8	59.1	N 72	15 05	16 32	17 54	■	■	■	■		
D 12	356 25.6 S 14 18.9	85 41.9	6.5	S 23 57.3	9.7	59.1	N 70	15 31	16 44	17 58	06 47	■	■	■	■	
	11 25.5 18.0	100 07.4	6.3	24 07.0	9.6	59.1	68	15 50	16 54	18 02	07 29	■	■	■	■	
	14	26 25.5 17.2	114 32.7	6.3	24 16.6	9.4	59.1	66	16 05	17 03	18 04	07 58	07 06	■	■	
	15	41 25.5 . 16.4	128 58.0	6.1	24 26.0	9.3	59.1	64	16 18	17 10	18 07	08 19	07 57	■	■	
	16	56 25.5 15.6	143 23.1	6.0	24 35.3	9.1	59.2	62	16 28	17 17	18 10	08 37	08 29	08 15	■	
	17	71 25.5 14.8	157 48.1	5.8	24 44.4	9.0	59.2	60	16 37	17 23	18 12	08 52	08 53	09 00	09 24	■
	18	86 25.5 S 14 14.0	172 12.9	5.8	S 24 53.4	8.8	59.2	N 58	16 45	17 27	18 14	09 05	09 13	09 29	10 06	■
	19	101 25.5 13.1	186 37.7	5.6	25 02.2	8.6	59.2	56	16 52	17 32	18 16	09 16	09 29	09 52	10 35	■
	20	116 25.5 12.3	201 02.3	5.5	25 10.8	8.6	59.2	54	16 59	17 36	18 18	09 25	09 43	10 11	10 57	■
	21	131 25.5 . 11.5	215 26.8	5.4	25 19.4	8.3	59.3	52	17 04	17 40	18 20	09 34	09 55	10 27	11 15	■
22	146 25.5 10.7	229 51.2	5.3	25 27.7	8.2	59.3	50	17 09	17 43	18 21	09 42	10 06	10 40	11 31	■	
23	161 25.5 09.9	244 15.5	5.2	25 35.9	8.1	59.3	45	17 20	17 51	18 26	09 59	10 29	11 09	12 02	■	
11	00	176 25.5 S 14 09.0	258 39.7	5.1	S 25 44.0	7.9	59.3	N 40	17 30	17 58	18 30	10 12	10 47	11 31	12 27	■
	01	191 25.5 08.2	273 03.8	4.9	25 51.9	7.7	59.3	35	17 38	18 04	18 34	10 24	11 02	11 49	12 47	■
	02	206 25.5 07.4	287 27.7	4.8	25 59.6	7.5	59.4	30	17 45	18 09	18 38	10 34	11 16	12 05	13 04	■
	03	221 25.5 . 06.6	301 51.5	4.8	26 07.1	7.4	59.4	20	17 57	18 19	18 46	10 52	11 39	12 32	13 33	■
	04	236 25.5 05.8	316 15.3	4.6	26 14.5	7.2	59.4	N 10	18 08	18 29	18 54	11 08	11 59	12 55	13 58	■
	05	251 25.5 04.9	330 38.9	4.5	26 21.7	7.1	59.4	0	18 18	18 39	19 04	11 22	12 17	13 17	14 21	■
	06	266 25.5 S 14 04.1	345 02.4	4.4	S 26 28.8	6.8	59.4	S 10	18 28	18 50	19 15	11 37	12 36	13 39	14 44	■
	07	281 25.5 03.3	359 25.8	4.3	26 35.6	6.7	59.5	20	18 39	19 02	19 29	11 53	12 56	14 02	15 09	■
	08	296 25.5 02.5	13 49.1	4.2	26 42.3	6.6	59.5	30	18 52	19 17	19 47	12 11	13 20	14 29	15 37	■
	09	311 25.5 . 01.7	28 12.3	4.2	26 48.9	6.3	59.5	35	18 59	19 26	19 59	12 22	13 33	14 46	15 54	■
10	326 25.5 00.8	42 35.5	4.0	26 55.2	6.2	59.5	40	19 08	19 37	20 12	12 34	13 49	15 04	16 14	■	
11	341 25.5 14 00.0	56 58.5	3.9	27 01.4	6.0	59.5	45	19 18	19 50	20 29	12 49	14 08	15 27	16 39	■	
T 12	356 25.5 S 13 59.2	71 21.4	3.8	S 27 07.4	5.8	59.5	S 50	19 30	20 06	20 52	13 07	14 32	15 56	17 10	■	
	11 25.5 58.4	85 44.2	3.7	27 13.2	5.6	59.6	52	19 36	20 14	21 03	13 15	14 44	16 11	17 25	■	
	14	26 25.5 57.5	100 06.9	3.6	27 18.8	5.4	59.6	54	19 42	20 23	21 16	13 24	14 57	16 27	17 43	■
	15	41 25.5 . 56.7	114 29.5	3.6	27 24.2	5.3	59.6	56	19 49	20 33	21 32	13 35	15 13	1		

G.M.T.	ARIES		VENUS -4.2		MARS +0.9		JUPITER -1.9		SATURN +0.8		STARS		
	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "		° ' "	° ' "
12 00	141 51.9	134 29.9 N 5 38.9	270 12.9 S 17 29.1	316 26.6 S 0 43.5	121 28.7 N 6 02.7	Acamar	315 43.6	S 40 25.9					
01	156 54.4	149 30.5	285 14.1	294	136 31.0	02.8	Alchernar	335 51.6	S 57 23.8				
02	171 56.9	164 31.1	300 15.3	29.7	151 33.2	02.9	Acruz	173 46.7	S 62 55.6				
03	186 59.3	179 31.7	315 16.5	30.1	166 35.5	03.0	Adhara	255 38.5	S 28 55.8				
04	202 01.8	194 32.3	330 17.8	30.4	181 37.8	03.1	Aldebaran	291 27.7	N 16 27.0				
05	217 04.3	209 32.9	345 19.0	30.7	196 40.0	03.1							
06	232 06.7	224 33.5 N 5 45.8	0 20.2 S 17 31.0	46 42.4 S 0 43.0	211 42.3 N 6 03.2	Alioth	166 49.3	N 56 07.3					
07	247 09.2	239 34.1	15 21.4	31.3	226 44.6	03.3	Alkaid	153 24.8	N 49 27.6				
08	262 11.6	254 34.7	30 22.6	31.7	241 46.8	03.4	Al Na'ir	28 25.9	S 47 06.8				
09	277 14.1	269 35.4	45 23.8	32.0	256 49.1	03.5	Alnilam	276 20.2	S 1 13.2				
10	292 16.6	284 36.0	60 25.0	32.3	271 51.4	03.6	Alphard	218 28.6	S 8 31.4				
11	307 19.0	299 36.6	75 26.3	32.6	286 53.6	03.7							
12	322 21.5	314 37.2 N 5 52.7	90 27.5 S 17 32.9	136 58.1 S 0 42.5	301 55.9 N 6 03.8	Alphecca	126 39.3	N 26 48.7					
13	337 24.0	329 37.8	105 28.7	33.2	316 58.1	03.9	Alpheratz	358 18.6	N 28 55.2				
14	352 26.4	344 38.4	120 29.9	33.6	332 00.4	03.9	Altair	62 41.2	N 8 46.9				
15	7 28.9	359 39.1	135 31.1	33.9	347 02.7	04.0	Ankaa	353 48.7	S 42 28.6				
16	22 31.4	14 39.7	150 32.3	34.2	2 04.9	04.1	Antares	113 07.5	S 26 22.0				
17	37 33.8	29 40.3	165 33.6	34.5	17 07.2	04.2							
18	52 36.3	44 40.9 N 5 59.6	180 34.8 S 17 34.8	227 13.8 S 0 42.1	32 09.5 N 6 04.3	Arcturus	146 26.1	N 19 20.3					
19	67 38.8	59 41.5	195 36.0	35.1	47 11.7	04.4	Atria	108 39.7	S 68 58.3				
20	82 41.2	74 42.2	210 37.2	35.5	62 14.0	04.5	Avior	234 31.3	S 59 24.6				
21	97 43.7	89 42.8	225 38.4	35.8	77 16.3	04.6	Bellatrix	279 07.7	N 6 19.4				
22	112 46.1	104 43.4	240 39.6	36.1	92 18.5	04.7	Betelgeuse	271 37.3	N 7 24.2				
23	127 48.6	119 44.1	255 40.9	36.4	107 20.8	04.7							
13 00	142 51.1	134 44.7 N 6 06.5	270 42.1 S 17 36.7	317 29.6 S 0 41.6	122 23.1 N 6 04.8	Canopus	264 10.7	S 52 40.8					
01	157 53.5	149 45.3	285 43.3	37.0	137 25.3	04.9	Capella	281 23.7	N 45 58.4				
02	172 56.0	164 46.0	300 44.5	37.4	152 27.6	05.0	Deneb	49 54.9	N 45 09.9				
03	187 58.5	179 46.6	315 45.7	37.7	167 29.8	05.1	Denebola	183 07.4	N 14 44.5				
04	203 00.9	194 47.2	330 47.0	38.0	182 32.1	05.2	Diphda	349 29.5	S 18 09.5				
05	218 03.4	209 47.9	345 48.2	38.3	197 34.4	05.3							
06	233 05.9	224 48.5 N 6 13.4	0 49.4 S 17 38.6	47 45.3 S 0 41.1	212 36.6 N 6 05.4	Dubhe	194 31.6	N 61 54.9					
07	248 08.3	239 49.1	15 50.6	38.9	227 38.9	05.5	Elnath	278 54.7	N 28 35.2				
08	263 10.8	254 49.8	30 51.8	39.2	242 41.2	05.6	Eltanin	91 02.0	N 51 29.1				
09	278 13.2	269 50.4	45 53.1	39.6	257 43.4	05.6	Enif	34 20.3	N 9 43.8				
10	293 15.7	284 51.1	60 54.3	39.9	272 45.7	05.7	Fomalhaut	16 01.0	S 29 47.4				
11	308 18.2	299 51.7	75 55.5	40.2	287 47.9	05.8							
12	323 20.6	314 52.3 N 6 20.2	90 56.7 S 17 40.5	138 01.1 S 0 40.6	302 50.2 N 6 05.9	Gacrux	172 38.2	S 56 56.3					
13	338 23.1	329 53.0	105 57.9	40.8	317 52.5	06.0	Gienah	176 26.6	S 17 22.3				
14	353 25.6	344 53.6	120 59.2	41.1	332 54.7	06.1	Hadar	149 35.6	S 60 13.4				
15	8 28.0	359 54.3	136 00.4	41.4	347 57.0	06.2	Hamal	328 38.7	N 23 19.1				
16	23 30.5	14 54.9	151 01.6	41.8	2 59.3	06.3	Kaus Aust.	84 28.4	S 34 24.2				
17	38 33.0	29 55.6	166 02.8	42.1	18 01.5	06.4							
18	53 35.4	44 56.2 N 6 27.0	181 04.1 S 17 42.4	228 16.9 S 0 40.1	33 03.8 N 6 06.5	Kochab	137 17.8	N 74 16.5					
19	68 37.9	59 56.9	296 05.3	42.7	48 06.0	06.6	Markab	14 12.0	N 15 02.2				
20	83 40.4	74 57.5	311 06.5	43.0	63 08.3	06.6	Menkar	314 50.1	N 3 58.2				
21	98 42.8	89 58.2	326 07.7	43.3	78 10.6	06.7	Menkent	148 47.1	S 36 13.1				
22	113 45.3	104 58.9	341 08.9	43.6	93 12.8	06.8	Miaplacidus	221 46.3	S 69 35.3				
23	128 47.7	119 59.5	256 10.2	43.9	108 15.1	06.9							
14 00	143 50.2	135 00.2 N 6 33.9	271 11.4 S 17 44.3	318 32.7 S 0 39.6	123 17.3 N 6 07.0	Mirfak	309 28.5	N 49 45.4					
01	158 52.7	150 00.8	286 12.6	44.6	138 19.6	07.1	Nunki	76 40.0	S 26 20.3				
02	173 55.1	165 01.5	301 13.8	44.9	153 21.9	07.2	Peacock	54 12.2	S 56 50.2				
03	188 57.6	180 02.2	316 15.1	45.2	168 24.1	07.3	Pollux	244 08.2	N 28 06.2				
04	204 00.1	195 02.8	331 16.3	45.5	183 26.4	07.4	Procyon	245 34.4	N 5 18.4				
05	219 02.5	210 03.5	346 17.5	45.8	198 28.6	07.5							
06	234 05.0	225 04.2 N 6 40.6	1 18.7 S 17 46.1	48 48.5 S 0 39.1	213 30.9 N 6 07.6	Rasalhague	96 37.7	N 12 34.5					
07	249 07.5	240 04.8	16 20.0	46.4	228 33.2	07.6	Regulus	208 18.7	N 12 07.1				
08	264 09.9	255 05.5	31 21.2	46.7	243 35.4	07.7	Rigel	281 44.0	S 8 14.2				
09	279 12.4	270 06.2	46 22.4	47.0	258 37.7	07.8	Rigel Kent.	140 37.6	S 60 42.3				
10	294 14.9	285 06.8	61 23.6	47.4	273 39.9	07.9	Sabik	102 51.1	S 15 41.5				
11	309 17.3	300 07.5	76 24.9	47.7	288 42.2	08.0							
12	324 19.8	315 08.2 N 6 47.4	91 26.1 S 17 48.0	139 04.3 S 0 38.6	303 44.5 N 6 08.1	Schedar	350 19.5	N 56 22.3					
13	339 22.2	330 08.9	106 27.3	48.3	318 46.7	08.2	Shaula	97 07.6	S 37 05.0				
14	354 24.7	345 09.5	121 28.6	48.6	333 49.0	08.3	Sirius	259 03.0	S 16 40.4				
15	9 27.2	0 10.2	136 29.8	48.9	348 51.2	08.4	Spica	159 06.4	S 11 00.1				
16	24 29.6	15 10.9	151 31.0	49.2	3 53.5	08.5	Suhail	223 16.8	S 43 18.4				
17	39 32.1	30 11.6	166 32.2	49.5	18 55.8	08.6							
18	54 34.6	45 12.3 N 6 54.2	181 33.5 S 17 49.8	229 20.1 S 0 38.1	33 58.0 N 6 08.6	Vega	81 01.9	N 38 44.9					
19	69 37.0	60 12.9	196 34.7	50.1	49 00.3	08.7	Zuben'ubi	137 42.5	S 15 55.0				
20	84 39.5	75 13.6	211 35.9	50.4	64 02.5	08.8							
21	99 42.0	90 14.3	226 37.2	50.7	79 04.8	08.9							
22	114 44.4	105 15.0	241 38.4	51.1	94 07.0	09.0	Venus	351 53.6	15 00				
23	129 46.9	120 15.7	256 39.6	51.4	109 09.3	09.1	Mars	127 51.0	5 57				
							Jupiter	174 38.5	2 50				
							Saturn	339 32.0	15 48				
Mer. Pass. 14 26.2		v 0.6 d 1.1	v 1.2 d 0.3		v 2.6 d 0.1								

G.M.T.		SUN		MOON						Lat.	Twilight		Sun-rise	Moonrise									
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.	Naut.		Civil	12		13	14	15							
d	h	°	'	°	'	°	'	°	'	°	'	h	m	h	m	h	m	h	m	h	m		
12	00	176	25-5	S13	49-3	243	49-4	2-9	S	28	04-7	3-5	59-7	N 72	06 24	07 45	09 07						
	01	191	25-5		48-5	258	11-3	2-7	S	28	08-2	3-3	59-8	N 70	06 21	07 34	08 44						
	02	206	25-5		47-6	272	33-0	2-7	S	28	11-5	3-2	59-8	68	06 19	07 25	08 27				10 41		
	03	221	25-5		46-8	286	54-7	2-6	S	28	14-7	2-9	59-8	66	06 17	07 17	08 14				09 32		
	04	236	25-5		46-0	301	16-4	2-6	S	28	17-6	2-7	59-8	64	06 15	07 11	08 02			10 04	08 55		
WEDNESDAY	05	251	25-5		45-1	315	38-0	2-5	S	28	20-3	2-6	59-8	62	06 13	07 05	07 53			08 40	08 29		
	06	266	25-5	S13	44-3	329	59-5	2-4	S	28	22-9	2-3	59-8	60	06 11	07 00	07 44	06 44	07 46	08 03	08 08		
	07	281	25-5		43-5	344	20-9	2-5	S	28	25-2	2-1	59-9	N 58	06 09	06 55	07 37	06 02	07 06	07 37	07 51		
	08	296	25-5		42-6	358	42-4	2-3	S	28	27-3	1-9	59-9	56	06 08	06 51	07 30	05 34	06 38	07 16	07 37		
	09	311	25-6		41-8	13	03-7	2-4	S	28	29-2	1-7	59-9	54	06 06	06 48	07 24	05 12	06 17	06 58	07 24		
THURSDAY	10	326	25-6		41-0	27	25-1	2-3	S	28	30-9	1-5	59-9	52	06 05	06 44	07 19	04 53	05 59	06 44	07 13		
	11	341	25-6		40-1	41	46-4	2-2	S	28	32-4	1-3	59-9	50	06 03	06 41	07 15	04 38	05 43	06 31	07 03		
	12	356	25-6	S13	39-3	56	07-6	2-2	S	28	33-7	1-1	59-9	45	06 00	06 34	07 04	04 07	05 12	06 04	06 42		
	13	11	25-6		38-5	70	28-8	2-2	S	28	34-8	0-9	59-9	N 40	05 56	06 28	06 56	03 43	04 48	05 42	06 25		
	14	26	25-6		37-6	84	50-0	2-1	S	28	35-7	0-6	59-9	35	05 53	06 22	06 48	03 23	04 28	05 25	06 11		
FRIDAY	15	41	25-6		36-8	99	11-1	2-2	S	28	36-3	0-5	60-0	30	05 49	06 17	06 42	03 06	04 11	05 09	05 58		
	16	56	25-6		36-0	113	32-3	2-0	S	28	36-8	0-3	60-0	20	05 42	06 08	06 30	02 37	03 43	04 43	05 37		
	17	71	25-6		35-1	127	53-3	2-1	S	28	37-1	0-0	60-0	N 10	05 34	05 59	06 20	02 13	03 18	04 20	05 18		
	18	86	25-6	S13	34-3	142	14-4	2-1	S	28	37-1	0-2	60-0	0	05 25	05 50	06 11	01 50	02 55	03 59	05 00		
	19	101	25-6		33-5	156	35-5	2-0	S	28	36-9	0-3	60-0	S 10	05 14	05 39	06 01	01 27	02 32	03 38	04 43		
SATURDAY	20	116	25-6		32-6	170	56-5	2-1	S	28	36-6	0-6	60-0	20	05 01	05 28	05 51	01 03	02 07	03 15	04 24		
	21	131	25-7		31-8	185	17-6	2-0	S	28	36-0	0-8	60-0	30	04 44	05 13	05 39	00 35	01 39	02 49	04 02		
	22	146	25-7		31-0	199	38-6	2-0	S	28	35-2	1-0	60-0	35	04 33	05 05	05 32	00 19	01 22	02 33	03 49		
	23	161	25-7		30-1	213	59-6	2-0	S	28	34-2	1-2	60-0	40	04 20	04 55	05 23	25 02	01 02	02 15	03 34		
	00	176	25-7	S13	29-3	228	20-6	2-0	S	28	33-0	1-5	60-1	45	04 03	04 42	05 14	24 38	00 38	01 53	03 16		
SUNDAY	01	191	25-7		28-5	242	41-6	2-1	S	28	31-5	1-6	60-1	S 50	03 42	04 27	05 03	24 07	00 07	01 25	02 53		
	02	206	25-7		27-6	257	02-7	2-0	S	28	29-9	1-9	60-1	52	03 31	04 19	04 57	23 51	25 11	01 11	02 43		
	03	221	25-7		26-8	271	23-7	2-0	S	28	28-0	2-0	60-1	54	03 19	04 11	04 51	23 33	24 55	00 55	02 31		
	04	236	25-7		25-9	285	44-7	2-1	S	28	26-0	2-3	60-1	56	03 04	04 02	04 45	23 11	24 36	00 36	02 17		
	05	251	25-8		25-1	300	05-8	2-1	S	28	23-7	2-5	60-1	58	02 47	03 51	04 37	22 44	24 13	00 13	02 00		
MONDAY	06	266	25-8	S13	24-3	314	26-9	2-0	S	28	21-2	2-7	60-1	S 60	02 25	03 38	04 29	22 03	23 42	25 40	01 40		
	07	281	25-8		23-4	328	47-9	2-2	S	28	18-5	2-9	60-1	Lat.	Sun-set	Twilight		Moonset					
	08	296	25-8		22-6	343	09-1	2-1	S	28	15-6	3-1	60-1			Civil	Naut.	12	13	14	15		
	09	311	25-8		21-7	357	30-2	2-2	S	28	12-5	3-3	60-1		°	h	m	h	m	h	m	h	m
	10	326	25-8		20-9	11	51-4	2-2	S	28	09-2	3-5	60-1	N 72	15 23	16 45	18 07						
TUESDAY	11	341	25-8		20-0	26	12-6	2-2	S	28	05-7	3-7	60-1	N 70	15 45	16 56	18 09						
	12	356	25-9	S13	19-2	40	33-8	2-3	S	28	02-0	4-0	60-1	68	16 02	17 05	18 11				12 07		
	13	11	25-9		18-4	54	55-1	2-3	S	27	58-0	4-1	60-1	66	16 16	17 13	18 13				13 15		
	14	26	25-9		17-5	69	16-4	2-4	S	27	53-9	4-3	60-2	64	16 27	17 19	18 15			10 36	13 50		
	15	41	25-9		16-7	83	37-8	2-4	S	27	49-6	4-6	60-2	62	16 37	17 25	18 17			11 59	14 15		
WEDNESDAY	16	56	25-9		15-8	97	59-2	2-4	S	27	45-0	4-7	60-2	60	16 45	17 30	18 19			12 35	14 35		
	17	71	25-9		15-0	112	20-6	2-5	S	27	40-3	5-0	60-2	N 58	16 53	17 34	18 20	10 06	11 19	13 01	14 51		
	18	86	26-0	S13	14-1	126	42-1	2-6	S	27	35-3	5-1	60-2	56	16 59	17 38	18 22	10 35	11 46	13 22	15 05		
	19	101	26-0		13-3	141	03-7	2-6	S	27	30-2	5-4	60-2	54	17 05	17 42	18 23	10 57	12 08	13 39	15 17		
	20	116	26-0		12-5	155	25-3	2-7	S	27	24-8	5-5	60-2	52	17 10	17 45	18 25	11 15	12 26	13 53	15 27		
THURSDAY	21	131	26-0		11-6	169	47-0	2-7	S	27	19-3	5-8	60-2	50	17 15	17 48	18 26	11 31	12 41	14 06	15 36		
	22	146	26-0		10-8	184	08-7	2-9	S	27	13-5	5-9	60-2	45	17 25	17 55	18 30	12 02	13 11	14 31	15 56		
	23	161	26-0		09-9	198	30-6	2-8	S	27	07-6	6-2	60-2	N 40	17 33	18 01	18 33	12 27	13 35	14 52	16 11		
	00	176	26-1	S13	09-1	212	52-4	3-0	S	27	01-4	6-3	60-2	35	17 41	18 07	18 36	12 47	13 55	15 09	16 25		
	01	191	26-1		08-2	227	14-4	3-0	S	26	55-1	6-6	60-2	30	17 47	18 12	18 40	13 04	14 11	15 23	16 36		
FRIDAY	02	206	26-1		07-4	241	36-4	3-1	S	26	48-5	6-7	60-2	20	17 58	18 21	18 47	13 33	14 39	15 48	16 55		
	03	221	26-1		06-5	255	58-5	3-2	S	26	41-8	6-9	60-2	N 10	18 08	18 30	18 55	13 58	15 04	16 09	17 12		
	04	236	26-1		05-7	270	20-7	3-2	S	26	34-9	7-1	60-2	0	18 18	18 39	19 04	14 21	15 26	16 29	17 28		
	05	251	26-2		04-8	284	42-9	3-4	S	26	27-8	7-3	60-2	S 10	18 27	18 49	19 14	14 44	15 48	16 48	17 43		
	06	266	26-2	S13	04-0	299	05-3	3-4	S	26	20-5	7-5	60-2	20	18 38	19 00	19 27	15 09	16 12	17 09	17 59		
SATURDAY	07	281	26-2		03-1	313	27-7	3-5	S	26	13-0	7-6	60-2	30	18 49	19 14	19 44	15 37	16 39	17 33	18 18		
	08	296	26-2		02-3	327	50-2	3-6	S	26	05-4	7-9											

G.M.T.		ARIES		VENUS -4.2		MARS +0.8		JUPITER -1.9		SATURN +0.8		STARS		
		G.H.A.		G.H.A. Dec.		G.H.A. Dec.		G.H.A. Dec.		G.H.A. Dec.		Name S.H.A. Dec.		
d	h													
1500	01	144	49.4	135 16.4 N 7 00.9	271 40.8 S 17 51.7	319 35.9 S 0 37.6	124 11.6 N 6 09.2	Acamar	315 43.6	S 40 25.8				
	02	159	51.8	150 17.1 02.1	286 42.1 52.0	334 38.5 37.5	139 13.8 09.3	Achernar	335 51.6	S 57 23.8				
	03	174	54.3	165 17.8 03.2	301 43.3 52.3	349 41.2 37.4	154 16.1 09.4	Acrux	173 46.7	S 62 55.6				
	04	189	56.7	180 18.4 .. 04.3	316 44.5 .. 52.6	4 43.8 .. 37.4	169 18.3 .. 09.5	Adhara	255 38.6	S 28 55.8				
	05	204	59.2	195 19.1 05.4	331 45.8 52.9	19 46.5 37.3	184 20.6 09.6	Aldebaran	291 27.7	N 16 27.0				
	06	220	01.7	210 19.8 06.5	346 47.0 53.2	34 49.1 37.2	199 22.8 09.7							
	07	235	04.1	225 20.5 N 7 07.7	1 48.2 S 17 53.5	49 51.7 S 0 37.1	214 25.1 N 6 09.7	Alioth	166 49.3	N 56 07.3				
	08	250	06.6	240 21.2 08.8	16 49.5 53.8	64 54.4 37.0	229 27.4 09.8	Alkaid	153 24.7	N 49 27.6				
	09	265	09.1	255 21.9 09.9	31 50.7 54.1	79 57.0 36.9	244 29.6 09.9	Al Na'ir	28 25.9	S 47 06.8				
	10	280	11.5	270 22.6 .. 11.0	46 51.9 .. 54.4	94 59.7 .. 36.8	259 31.9 .. 10.0	Alnilam	276 20.2	S 1 13.2				
SATURDAY	11	295	14.0	285 23.3 12.1	61 53.2 54.7	110 02.3 36.7	274 34.1 10.1	Alphard	218 28.6	S 8 31.5				
	12	310	16.5	300 24.0 13.2	76 54.4 55.0	125 04.9 36.7	289 36.4 10.2							
	13	325	18.9	315 24.7 N 7 14.4	91 55.6 S 17 55.3	140 07.6 S 0 36.6	304 38.6 N 6 10.3	Alphecca	126 39.3	N 26 48.7				
	14	340	21.4	330 25.5 15.5	106 56.9 55.6	155 10.2 36.5	319 40.9 10.4	Alpheratz	358 18.6	N 28 55.2				
	15	355	23.8	345 26.2 16.6	121 58.1 55.9	170 12.9 36.4	334 43.2 10.5	Altair	62 41.2	N 8 46.9				
	16	10	26.3	0 26.9 .. 17.7	136 59.3 .. 56.2	185 15.5 .. 36.3	349 45.4 .. 10.6	Ankaa	353 48.7	S 42 28.6				
	17	25	28.8	15 27.6 18.8	152 00.5 56.5	200 18.2 36.2	4 47.7 10.7	Antares	113 07.4	S 26 22.0				
	18	40	31.2	30 28.3 19.9	167 01.8 56.8	215 20.8 36.1	19 49.9 10.8							
	19	55	33.7	45 29.0 N 7 21.1	182 03.0 S 17 57.2	230 23.4 S 0 36.1	34 52.2 N 6 10.9	Arcturus	146 26.0	N 19 20.3				
	20	70	36.2	60 29.7 22.2	197 04.2 57.5	245 26.1 36.0	49 54.4 10.9	Atria	108 39.7	S 68 58.3				
SUNDAY	21	85	38.6	75 30.4 23.3	212 05.5 57.8	260 28.7 35.9	64 56.7 11.0	Avior	234 31.3	S 59 24.6				
	22	100	41.1	90 31.2 .. 24.4	227 06.7 .. 58.1	275 31.4 .. 35.8	79 58.9 .. 11.1	Bellatrix	279 07.7	N 6 19.4				
	23	115	43.6	105 31.9 25.5	242 08.0 58.4	290 34.0 35.7	95 01.2 11.2	Betelgeuse	271 37.3	N 7 24.2				
	24	130	46.0	120 32.6 26.6	257 09.2 58.7	305 36.7 35.6	110 03.5 11.3							
	01	145	48.5	135 33.3 N 7 27.7	272 10.4 S 17 59.0	320 39.3 S 0 35.5	125 05.7 N 6 11.4	Canopus	264 10.7	S 52 40.8				
	02	160	50.9	150 34.0 28.8	287 11.7 59.3	335 41.9 35.4	140 08.0 11.5	Capella	281 23.7	N 45 58.4				
	03	175	53.4	165 34.8 29.9	302 12.9 59.6	350 44.6 35.4	155 10.2 11.6	Deneb	49 54.9	N 45 09.9				
	04	190	55.9	180 35.5 .. 31.1	317 14.1 17 59.9	5 47.2 .. 35.3	170 12.5 .. 11.7	Denebola	183 07.4	N 14 44.5				
	05	205	58.3	195 36.2 32.2	332 15.4 18 00.2	20 49.9 35.2	185 14.7 11.8	Diphda	349 29.5	S 18 09.5				
	06	221	00.8	210 36.9 33.3	347 16.6 00.5	35 52.5 35.1	200 17.0 11.9							
MONDAY	07	236	03.3	225 37.7 N 7 34.4	2 17.8 S 18 00.8	50 55.2 S 0 35.0	215 19.2 N 6 12.0	Dubhe	194 31.5	N 61 55.0				
	08	251	05.7	240 38.4 35.5	17 19.1 01.1	65 57.8 34.9	230 21.5 12.1	Elnath	278 54.8	N 28 35.2				
	09	266	08.2	255 39.1 36.6	32 20.3 01.4	81 00.5 34.8	245 23.7 12.1	Eltanin	91 02.0	N 51 29.1				
	10	281	10.7	270 39.9 .. 37.7	47 21.5 .. 01.7	96 03.1 .. 34.7	260 26.0 .. 12.2	Enif	34 20.3	N 9 43.8				
	11	296	13.1	285 40.6 38.8	62 22.8 02.0	111 05.8 34.6	275 28.2 12.3	Fomalhaut	16 01.0	S 29 47.4				
	12	311	15.6	300 41.3 39.9	77 24.0 02.3	126 08.4 34.6	290 30.5 12.4							
	13	326	18.1	315 42.1 N 7 41.0	92 25.3 S 18 02.6	141 11.1 S 0 34.5	305 32.8 N 6 12.5	Gacrux	172 38.2	S 56 56.3				
	14	341	20.5	330 42.8 42.1	107 26.5 02.9	156 13.7 34.4	320 35.0 12.6	Gienah	176 26.6	S 17 22.3				
	15	356	23.0	345 43.5 43.2	122 27.7 03.2	171 16.3 34.3	335 37.3 12.7	Hadar	149 35.5	S 60 13.4				
	16	11	25.4	0 44.3 .. 44.3	137 29.0 .. 03.5	186 19.0 .. 34.2	350 39.5 .. 12.8	Hamal	328 38.7	N 23 19.1				
TUESDAY	17	26	27.9	15 45.0 45.4	152 30.2 03.8	201 21.6 34.1	5 41.8 12.9	Kaus Aust.	84 28.4	S 34 24.2				
	18	41	30.4	30 45.8 46.5	167 31.5 04.1	216 24.3 34.0	20 44.0 13.0							
	19	56	32.8	45 46.5 N 7 47.6	182 32.7 S 18 04.4	231 26.9 S 0 33.9	35 46.3 N 6 13.1	Kochab	137 17.7	N 74 16.5				
	20	71	35.3	60 47.3 48.7	197 33.9 04.7	246 29.6 33.8	50 48.5 13.2	Markab	14 12.0	N 15 02.2				
	21	86	37.8	75 48.0 49.8	212 35.2 05.0	261 32.2 33.8	65 50.8 13.3	Menkar	314 50.1	N 3 58.2				
	22	101	40.2	90 48.8 .. 50.9	227 36.4 .. 05.3	276 34.9 .. 33.7	80 53.0 .. 13.4	Menkent	148 47.1	S 36 13.1				
	23	116	42.7	105 49.5 52.0	242 37.7 05.6	291 37.5 33.6	95 55.3 13.4	Miaplacidus	221 46.3	S 69 35.3				
	24	131	45.2	120 50.3 53.1	257 38.9 05.9	306 40.2 33.5	110 57.5 13.5							
	01	146	47.6	135 51.0 N 7 54.2	272 40.1 S 18 06.2	321 42.8 S 0 33.4	125 59.8 N 6 13.6	Mirfak	309 28.5	N 49 45.4				
	02	161	50.1	150 51.8 55.3	287 41.4 06.5	336 45.5 33.3	141 02.0 13.7	Nunki	76 40.0	S 26 20.3				
03	176	52.6	165 52.5 56.4	302 42.6 06.7	351 48.1 33.2	156 04.3 13.8	Peacock	54 12.2	S 56 50.2					
04	191	55.0	180 53.3 .. 57.5	317 43.9 .. 07.0	6 50.8 .. 33.1	171 06.5 .. 13.9	Pollux	244 08.2	N 28 06.2					
05	206	57.5	195 54.0 58.6	332 45.1 07.3	21 53.4 33.0	186 08.8 14.0	Procyon	245 34.4	N 5 18.4					
06	221	59.9	210 54.8 7 59.7	347 46.3 07.6	36 56.1 32.9	201 11.0 14.1								
WEDNESDAY	07	237	02.4	225 55.6 N 8 00.8	2 47.6 S 18 07.9	51 58.7 S 0 32.8	216 13.3 N 6 14.2	Rasalhague	96 37.7	N 12 34.5				
	08	252	04.9	240 56.3 01.9	17 48.8 08.2	67 01.4 32.8	231 15.5 14.3	Regulus	208 18.7	N 12 07.1				
	09	267	07.3	255 57.1 03.0	32 50.1 08.5	82 04.1 32.7	246 17.8 14.4	Rigel	281 44.1	S 8 14.2				
	10	282	09.8	270 57.9 .. 04.1	47 51.3 .. 08.8	97 06.7 .. 32.6	261 20.0 .. 14.5	Rigel Kent.	140 37.5	S 60 42.3				
	11	297	12.3	285 58.6 05.2	62 52.6 09.1	112 09.4 32.5	276 22.3 14.6	Sabik	102 51.1	S 15 41.5				
	12	312	14.7	300 59.4 06.3	77 53.8 09.4	127 12.0 32.4	291 24.5 14.7							
	13	327	17.2	316 00.2 N 8 07.4	92 55.0 S 18 09.7	142 14.7 S 0 32.3	306 26.8 N 6 14.8	Schedar	350 19.5	N 56 22.3				
	14	342	19.7	331 00.9 08.4	107 56.3 10.0	157 17.3 32.2	321 29.1 14.9	Shaula	97 07.6	S 37 05.0				
	15	357	22.1	346 01.7 09.5	122 57.5 10.3	172 20.0 32.1	336 31.3 14.9	Sirius	259 03.0	S 16 40.4				
	16	12	24.6	1 02.5 .. 10.6	137 58.8 .. 10.6	187 22.6 .. 32.0	351 33.6 .. 15.0	Spica	159 06.4	S 11 00.2				
THURSDAY	17	27	27.1	16 03.3 11.7	153 00.0 10.9	202 25.3 31.9	6 35.8 15.1	Suhail	223 16.8	S 43 18.4				
	18	42	29.5	31 04.0 12.8	168 01.3 11.2	217 27.9 31.8	21 38.1 15.2							
	19	57	32.0	46 04.8 N 8 13.9	183 02.5 S 18 11.5	232 30.6 S 0 31.7	36 40.3 N 6 15.3	Vega	81 01.9	N 38 44.9				
	20	72	34.4	61 05.6 15.0	198 03.8 11.8	247 33.2 31.7	51 42.6 15.4	Zuben'ubi	137 42.5	S 15 55.0				
	21	87	36.9	76 06.4 16.1	213 05.0 12.1	262 35.9 31.6	66 44.8 15.5							
	22	102	39.4	91 07.2 .. 17.1	228 06.3 .. 12.4	277 38.6 .. 31.5	81 47.0 .. 15.6							
	23	117	41.8	106 07.9 18.2	243 07.5 12.7	292 41.2 31.4	96 49.3 15.7	Venus	349 44.8	14 57				
	24	132	44.3	121 08.7 19.3	258 08.8 12.9	307 43.9 31.3	111 51.5 15.8	Mars	126 21.9	5 51				
	Mer. Pass. 14 14.4		v 0.7 d 1.1		v 1.2 d 0.3		v 2.6 d 0.1		v 2.3 d 0.1		Jupiter Saturn			
											S.H.A. Mer. Pass. h m h m			
										Venus 349 44.8 14 57				
										Mars 126 21.9 5 51				
										Jupiter 174 50.8 2 37				
										Saturn 339 17.2 15 37				

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise					
		G.H.A.	Dec.	G.H.A.	φ	Dec.	d		H.P.	Naut.		Civil	15	16	17	18	
d	h	°	'	°	'	°	'	°	'	h	m	h	m	h	m	h	m
15	00	176 26.6	S 12 48.6	198 03.3	5.2	S 23 38.9	10.5	60.1	N 72	06 11	07 31	08 49	■	10 28	09 14	08 31	08 25
	01	191 26.7	47.8	212 27.5	5.3	S 23 28.4	10.7	60.1	N 70	06 10	07 21	08 30	■	09 45	08 57	08 25	08 21
	02	206 26.7	46.9	226 51.8	5.4	S 23 17.7	10.9	60.1	68	06 09	07 14	08 15	10 41	09 16	08 44	08 21	08 16
	03	221 26.7	46.1	241 16.2	5.6	S 23 06.8	11.0	60.1	66	06 07	07 07	08 03	09 32	08 54	08 33	08 16	08 13
	04	236 26.7	45.2	255 40.8	5.6	S 22 55.8	11.1	60.1	64	06 06	07 02	07 52	08 55	08 36	08 24	08 16	08 10
	05	251 26.8	44.4	270 05.4	5.8	S 22 44.7	11.3	60.1	62	06 05	06 57	07 44	08 29	08 22	08 16	08 10	08 07
	06	266 26.8	S 12 43.5	284 30.2	5.9	S 22 33.4	11.4	60.1	60	06 04	06 52	07 36	08 08	08 09	08 09	08 07	08 05
	07	281 26.8	42.6	298 55.1	6.0	S 22 22.0	11.6	60.0	N 58	06 03	06 48	07 29	07 51	07 58	08 02	08 05	08 03
	08	296 26.9	41.8	313 20.1	6.1	S 22 10.4	11.7	60.0	56	06 02	06 45	07 24	07 37	07 49	07 57	08 03	08 01
	09	311 26.9	40.9	327 45.2	6.2	S 21 58.7	11.9	60.0	54	06 01	06 42	07 18	07 24	07 40	07 52	08 01	08 00
	10	326 26.9	40.1	342 10.4	6.4	S 21 46.8	12.0	60.0	52	05 59	06 39	07 14	07 13	07 33	07 47	07 59	07 58
	11	341 26.9	39.2	356 35.8	6.4	S 21 34.8	12.1	60.0	50	05 58	06 36	07 09	07 03	07 26	07 43	07 58	07 57
	12	356 27.0	S 12 38.3	11 01.2	6.6	S 21 22.7	12.3	60.0	45	05 55	06 30	07 00	06 42	07 11	07 34	07 54	07 54
	13	11 27.0	37.5	25 26.8	6.7	S 21 10.4	12.3	60.0	N 40	05 53	06 24	06 52	06 25	06 59	07 27	07 51	07 51
	14	26 27.0	36.6	39 52.5	6.8	S 20 58.1	12.5	60.0	35	05 50	06 19	06 45	06 11	06 49	07 21	07 49	07 49
	15	41 27.1	35.8	54 18.3	6.9	S 20 45.6	12.7	59.9	30	05 47	06 15	06 39	05 58	06 40	07 15	07 46	07 46
	16	56 27.1	34.9	68 44.2	7.1	S 20 32.9	12.7	59.9	20	05 40	06 06	06 29	05 37	06 24	07 05	07 42	07 42
	17	71 27.1	34.0	83 10.3	7.1	S 20 20.2	12.9	59.9	N 10	05 33	05 58	06 20	05 18	06 10	06 56	07 39	07 39
	18	86 27.2	S 12 33.2	97 36.4	7.3	S 20 07.3	13.0	59.9	0	05 25	05 50	06 11	05 00	05 57	06 48	07 36	07 36
	19	101 27.2	32.3	112 02.7	7.4	S 19 54.3	13.1	59.9	S 10	05 15	05 40	06 02	04 43	05 43	06 40	07 33	07 33
	20	116 27.2	31.4	126 29.1	7.5	S 19 41.2	13.2	59.9	20	05 03	05 29	05 52	04 24	05 29	06 31	07 29	07 29
	21	131 27.3	30.6	140 55.6	7.7	S 19 28.0	13.3	59.9	30	04 47	05 16	05 41	04 02	05 13	06 21	07 25	07 25
	22	146 27.3	29.7	155 22.3	7.7	S 19 14.7	13.5	59.8	35	04 36	05 08	05 34	03 49	05 03	06 15	07 23	07 23
23	161 27.3	28.9	169 49.0	7.9	S 19 01.2	13.5	59.8	40	04 24	04 58	05 27	03 34	04 52	06 08	07 20	07 20	
24	176 27.4	S 12 28.0	184 15.9	7.9	S 18 47.7	13.7	59.8	45	04 08	04 47	05 18	03 16	04 40	06 00	07 17	07 17	
16	00	176 27.4	S 12 28.0	184 15.9	7.9	S 18 47.7	13.7	59.8	S 50	03 48	04 33	05 08	02 53	04 24	05 51	07 14	07 14
	01	191 27.4	27.1	198 42.8	8.1	S 18 34.0	13.7	59.8	52	03 39	04 26	05 03	02 43	04 16	05 46	07 12	07 12
	02	206 27.4	26.3	213 09.9	8.2	S 18 20.3	13.9	59.8	54	03 27	04 18	04 58	02 31	04 08	05 42	07 10	07 10
	03	221 27.5	25.4	227 37.1	8.4	S 18 06.4	13.9	59.8	56	03 14	04 09	04 51	02 17	03 59	05 36	07 08	07 08
	04	236 27.5	24.5	242 04.5	8.4	S 17 52.5	14.1	59.7	58	02 58	03 59	04 45	02 00	03 48	05 30	07 06	07 06
	05	251 27.5	23.7	256 31.9	8.5	S 17 38.4	14.1	59.7	S 60	02 39	03 48	04 37	01 40	03 36	05 23	07 03	07 03
	06	266 27.6	S 12 22.8	270 59.4	8.7	S 17 24.3	14.2	59.7									
	07	281 27.6	21.9	285 27.1	8.8	S 17 10.1	14.4	59.7	Lat.	Sun-set	Twilight		Moonset				
	08	296 27.6	21.1	299 54.9	8.8	S 16 55.7	14.4	59.7			Civil	Naut.	15	16	17	18	
	09	311 27.7	20.2	314 22.7	9.0	S 16 41.3	14.5	59.6									
	10	326 27.7	19.3	328 50.7	9.1	S 16 26.8	14.6	59.6									
	11	341 27.8	18.5	343 18.8	9.2	S 16 12.2	14.6	59.6									
	12	356 27.8	S 12 17.6	357 47.0	9.4	S 15 57.6	14.8	59.6									
	13	11 27.8	16.7	12 15.4	9.4	S 15 42.8	14.8	59.6	N 72	15 41	16 59	18 19	■	14 18	17 19	19 42	19 42
	14	26 27.9	15.9	26 43.8	9.5	S 15 28.0	14.9	59.5	N 70	16 00	17 08	18 20	■	14 59	17 32	19 43	19 43
	15	41 27.9	15.0	41 12.3	9.6	S 15 13.1	15.0	59.5	68	16 15	17 16	18 21	12 07	15 26	17 43	19 45	19 45
	16	56 28.0	14.1	55 40.9	9.8	S 14 58.1	15.0	59.5	66	16 15	17 16	18 21	12 07	15 26	17 43	19 45	19 45
	17	71 28.0	13.2	70 09.7	9.8	S 14 43.1	15.1	59.5	64	16 17	17 22	18 23	13 15	15 47	17 52	19 46	19 46
	18	86 28.0	S 12 12.4	84 38.5	10.0	S 14 28.0	15.2	59.4	62	16 37	17 28	18 24	13 50	16 03	18 00	19 47	19 47
	19	101 28.1	11.5	99 07.5	10.0	S 14 12.8	15.2	59.4	60	16 46	17 33	18 25	14 15	16 16	18 06	19 48	19 48
	20	116 28.1	10.6	113 36.5	10.2	S 13 57.6	15.4	59.4	60	16 53	17 37	18 26	14 35	16 27	18 11	19 49	19 49
	21	131 28.2	9.9	128 05.7	10.2	S 13 42.2	15.3	59.4	N 58	17 00	17 41	18 27	14 51	16 37	18 16	19 50	19 50
	22	146 28.2	08.9	142 34.9	10.4	S 13 26.9	15.5	59.3	56	17 06	17 44	18 28	15 05	16 46	18 20	19 50	19 50
23	161 28.2	08.0	157 04.3	10.4	S 13 11.4	15.5	59.3	54	17 11	17 47	18 29	15 17	16 53	18 24	19 51	19 51	
24	176 28.3	S 12 07.1	171 33.7	10.6	S 12 56.0	15.6	59.3	52	17 15	17 50	18 30	15 27	17 00	18 28	19 51	19 51	
17	00	176 28.3	S 12 07.1	171 33.7	10.6	S 12 56.0	15.6	59.3	50	17 20	17 53	18 31	15 36	17 06	18 31	19 52	19 52
	01	191 28.3	06.3	186 03.3	10.6	S 12 40.4	15.6	59.3	45	17 29	17 59	18 33	15 56	17 18	18 37	19 53	19 53
	02	206 28.4	05.4	200 32.9	10.8	S 12 24.8	15.6	59.2	N 40	17 37	18 05	18 36	16 11	17 29	18 43	19 53	19 53
	03	221 28.4	04.5	215 02.7	10.8	S 12 09.2	15.7	59.2	35	17 43	18 09	18 39	16 25	17 38	18 48	19 54	19 54
	04	236 28.4	03.7	229 32.5	10.9	S 11 53.5	15.8	59.2	30	17 49	18 14	18 42	16 36	17 46	18 52	19 55	19 55
	05	251 28.5	02.8	244 02.4	11.0	S 11 37.7	15.8	59.2	20	18 00	18 22	18 48	16 55	17 59	18 59	19 56	19 56
	06	266 28.5	S 12 01.9	258 32.4	11.1	S 11 21.9	15.8	59.1	N 10	18 09	18 30	18 55	17 12	18 11	19 05	19 57	19 57
	07	281 28.6	01.0	273 02.5	11.2	S 11 06.1	15.9	59.1	0	18 18	18 39	19 03	17 28	18 22	19 11	19 57	19 57
	08	296 28.6	12 00.2	287 32.7	11.3	S 10 50.2	15.9	59.1	S 10	18 26	18 48	19 13	17 43	18 32	19 17	19 58	19 58
	09	311 28.7	11 59.3	302 03.0	11.4	S 10 34.3	16.0	59.1	20	18 36	18 58	19 25	17 59	18 44	19 23	19 59	19 59
	10	326 28.7	58.4	316 33.4	11.4	S 10 18.3	16.0	59.0	30	18 47	19 12	19 41	18 18	18 56	19 30	20 00	20 00
	11	341 28.8	57.5	331 03.8	11.5	S 10 02.3	16.1	59.0	35	18 53	19 20	19 51	18 29	19 04	19 33	20 00	20 00
	12	356 28.8	S 11 56.6	345 34.3	11.7	S 9 46.3	16.1	59.0	40	19 01	19 29	20 03	18 41	19 12	19 38	20 01	20 01
	13	11 28.8	55.8	0 05.0	11.7	S 9 30.2	16.1	58.9	45	19 09	19 40	20 18	18 56	19 22	19 43	20 02	20 02
	14	26 28.9	54.9	14 35.7	11.7	S 9 14.1	16.1	58.9	S 50	19 19	19 54	20 38	19 13	19 33	19 49	20 02	20 02
	15	41 28.9	54.0	29 06.4	11.9	S 8 58.0	16.2	58.9	52	19 24	20 01	20 48	19 21	19 38	19 52	20 03	20 03
	16	56 29.0	53.1	43 37.3	11.9	S 8 41.8	16.2	58.9	54	19 29	20 09	20 59	19 30	19 44	19 55	20 03	20 03
	17	71 29.0	52.3	58 08.2	12.1	S 8 25.6	16.2	58.8	56	19 35	20 17	21 12	19 41	19 51	19 58	20 03	20 03
	18	86 29.1	S 11 51.4	72 39.3	12.1	S 8 09.4	16.2	58.8	58	19 42	20 27	21 27	19 52	19 58	20 02	20 04	20 04
	19	101 29.1	50.5	87 10.4	12.1	S 7 53.2	16.3	58.8	S 60	19 49	20 38	21 46	20 06	20 06	20 06	20 04	20 04
	20	116 29.2	49.6	101 41.5	12.3	S 7 36.9	16.2	58.7									
	21	131 29.2	48.7	116 12.8	12.3	S 7 20.7	16.3	58.7	Day	Eqn. of Time	Mer. Pass.	Mer. Upper	Pass. Lower	Age	Phase		
	22	146 29.3	47.9	130 44.1	12.4	S 7 04.4	16.4										

G.M.T.		ARIES		VENUS -4.3		MARS +0.8		JUPITER -1.9		SATURN +0.8		STARS		
		G.H.A.		G.H.A. Dec.		G.H.A. Dec.		G.H.A. Dec.		G.H.A. Dec.		Name	S.H.A.	Dec.
d	h	°	'	°	'	°	'	°	'	°	'		°	'
18	00	147 46.8		136 09.5	N 8 20.4	273 10.0	S 18 13.2	322 46.5	S 0 31.2	126 53.8	N 6 15.9	Acamar	315 43.6	S 40 25.8
	01	162 49.2		151 10.3	21.5	288 11.2	13.5	337 49.2	31.1	141 56.0	16.0	Achernar	335 51.6	S 57 23.8
	02	177 51.7		166 11.1	22.6	303 12.5	13.8	352 51.8	31.0	156 58.3	16.1	Acruz	173 46.7	S 62 55.6
	03	192 54.2		181 11.9	23.6	318 13.7	14.1	7 54.5	30.9	172 00.5	16.2	Adhara	255 38.6	S 28 55.8
	04	207 56.6		196 12.7	24.7	333 15.0	14.4	22 57.2	30.8	187 02.8	16.3	Aldebaran	291 27.8	N 16 27.0
05	222 59.1		211 13.5	25.8	348 16.2	14.7	37 59.8	30.7	202 05.0	16.4				
TUESDAY	06	238 01.6		226 14.3	N 8 26.9	3 17.5	S 18 15.0	53 02.5	S 0 30.6	217 07.3	N 6 16.5	Alioth	166 49.2	N 56 07.3
	07	253 04.0		241 15.1	28.0	18 18.7	15.3	68 05.1	30.5	232 09.5	16.6	Alkaid	153 24.7	N 49 27.7
	08	268 06.5		256 15.9	29.1	33 20.0	15.6	83 07.8	30.5	247 11.8	16.7	Al Na'ir	28 25.9	S 47 06.6
	09	283 08.9		271 16.7	30.1	48 21.2	15.9	98 10.4	30.4	262 14.0	16.8	Alnilam	276 20.2	S 1 13.3
	10	298 11.4		286 17.5	31.2	63 22.5	16.2	113 13.1	30.3	277 16.3	16.8	Alphard	218 28.6	S 8 31.5
11	313 13.9		301 18.3	32.3	78 23.7	16.5	128 15.8	30.2	292 18.5	16.9				
	12	328 16.3		316 19.1	N 8 33.4	93 25.0	S 18 16.7	143 18.4	S 0 30.1	307 20.8	N 6 17.0	Alphecca	126 39.2	N 26 48.7
	13	343 18.8		331 19.9	34.4	108 26.2	17.0	158 21.1	30.0	322 23.0	17.1	Alpheratz	358 18.6	N 28 55.2
	14	358 21.3		346 20.7	35.5	123 27.5	17.3	173 23.7	29.9	337 25.3	17.2	Altair	62 41.1	N 8 46.9
	15	13 23.7		1 21.5	36.6	138 28.7	17.6	188 26.4	29.8	352 27.5	17.3	Ankaa	353 48.7	S 42 28.6
	16	28 26.2		16 22.3	37.7	153 30.0	17.9	203 29.1	29.7	7 29.8	17.4	Antares	113 07.4	S 26 22.0
17	43 28.7		31 23.1	38.7	168 31.3	18.2	218 31.7	29.6	22 32.0	17.5				
	18	58 31.1		46 23.9	N 8 39.8	183 32.5	S 18 18.5	233 34.4	S 0 29.5	37 34.3	N 6 17.6	Arcturus	146 26.0	N 19 20.3
	19	73 33.6		61 24.7	40.9	198 33.8	18.8	248 37.0	29.4	52 36.5	17.7	Atria	108 39.6	S 68 58.3
	20	88 36.1		76 25.6	42.0	213 35.0	19.1	263 39.7	29.3	67 38.8	17.8	Avior	234 31.3	S 59 24.6
	21	103 38.5		91 26.4	43.0	228 36.3	19.4	278 42.4	29.2	82 41.0	17.9	Bellatrix	279 07.8	N 6 19.4
	22	118 41.0		106 27.2	44.1	243 37.5	19.6	293 45.0	29.1	97 43.2	18.0	Betelgeuse	271 37.3	N 7 24.2
23	133 43.4		121 28.0	45.2	258 38.8	19.9	308 47.7	29.0	112 45.5	18.1				
19	00	148 45.9		136 28.8	N 8 46.2	273 40.0	S 18 20.2	323 50.4	S 0 28.9	127 57.0	N 6 18.2	Canopus	264 10.7	S 52 40.8
	01	163 48.4		151 29.7	47.3	288 41.3	20.5	338 53.0	28.8	142 40.0	18.3	Capella	281 23.7	N 45 58.4
	02	178 50.8		166 30.5	48.4	303 42.5	20.8	353 55.7	28.7	157 52.2	18.4	Deneb	49 54.8	N 45 09.9
	03	193 53.3		181 31.3	49.4	318 43.8	21.1	8 58.3	28.6	172 54.5	18.5	Denebola	183 07.4	N 14 44.5
	04	208 55.8		196 32.1	50.5	333 45.0	21.4	24 01.0	28.6	187 56.7	18.6	Diphda	349 29.6	S 18 09.5
05	223 58.2		211 33.0	51.6	348 46.3	21.7	39 03.7	28.5	202 59.0	18.7				
WEDNESDAY	06	239 00.7		226 33.8	N 8 52.6	3 47.6	S 18 21.9	54 06.3	S 0 28.4	218 01.2	N 6 18.8	Dubhe	194 31.5	N 61 55.0
	07	254 03.2		241 34.6	53.7	18 48.8	22.2	69 09.0	28.3	233 03.5	18.8	Elnath	278 54.8	N 28 35.2
	08	269 05.6		256 35.5	54.8	33 50.1	22.5	84 11.7	28.2	248 05.7	18.9	Eltanin	91 01.9	N 51 29.1
	09	284 08.1		271 36.3	55.8	48 51.3	22.8	99 14.3	28.1	263 08.0	19.0	Enif	34 20.3	N 9 43.3
	10	299 10.5		286 37.2	56.9	63 52.6	23.1	114 17.0	28.0	278 10.2	19.1	Fomalhaut	16 01.0	S 29 47.4
11	314 13.0		301 38.0	58.0	78 53.8	23.4	129 19.7	27.9	293 12.4	19.2				
	12	329 15.5		316 38.8	N 8 59.0	93 55.1	S 18 23.7	144 22.3	S 0 27.8	308 14.7	N 6 19.3	Gacrux	172 38.1	S 56 56.3
	13	344 17.9		331 39.7	9 00.1	108 56.4	24.0	159 25.0	27.7	323 16.9	19.4	Gienah	176 26.5	S 17 22.3
	14	359 20.4		346 40.5	01.2	123 57.6	24.2	174 27.7	27.6	338 19.2	19.5	Hadar	149 35.5	S 60 13.4
	15	14 22.9		1 41.4	02.2	138 58.9	24.5	189 30.3	27.5	353 21.4	19.6	Hamal	328 38.7	N 23 19.1
	16	29 25.3		16 42.2	03.3	154 00.1	24.8	204 33.0	27.4	8 23.7	19.7	Kaus Aust.	84 28.4	S 34 24.2
17	44 27.8		31 43.1	04.3	169 01.4	25.1	219 35.6	27.3	23 25.9	19.8				
	18	59 30.3		46 43.9	N 9 05.4	184 02.6	S 18 25.4	234 38.3	S 0 27.2	38 28.2	N 6 19.9	Kochab	137 17.7	N 74 16.5
	19	74 32.7		61 44.8	06.5	199 03.9	25.7	249 41.0	27.1	53 30.4	20.0	Markab	14 12.0	N 15 02.2
	20	89 35.2		76 45.6	07.5	214 05.2	26.0	264 43.6	27.0	68 32.7	20.1	Menkar	314 50.1	N 3 58.2
	21	104 37.6		91 46.5	08.6	229 06.4	26.2	279 46.3	26.9	83 34.9	20.2	Menkent	148 47.0	S 36 13.1
	22	119 40.1		106 47.3	09.6	244 07.7	26.5	294 49.0	26.8	98 37.1	20.3	Miaplacidus	221 46.4	S 69 35.4
23	134 42.6		121 48.2	10.7	259 08.9	26.8	309 51.6	26.7	113 39.4	20.4				
20	00	149 45.0		136 49.0	N 9 11.7	274 10.2	S 18 27.1	324 54.3	S 0 26.6	128 41.6	N 6 20.5	Mirfak	309 28.5	N 49 45.5
	01	164 47.5		151 49.9	12.8	289 11.5	27.4	339 57.0	26.5	143 43.9	20.6	Nunki	76 40.0	S 26 20.3
	02	179 50.0		166 50.8	13.8	304 12.7	27.7	354 59.7	26.4	158 46.1	20.7	Peacock	54 12.2	S 56 50.2
	03	194 52.4		181 51.6	14.9	319 14.0	27.9	10 02.3	26.3	173 48.4	20.8	Pollux	244 08.2	N 28 06.2
	04	209 54.9		196 52.5	15.9	334 15.2	28.2	25 05.0	26.2	188 50.6	20.9	Procyon	245 34.4	N 5 18.3
05	224 57.4		211 53.4	17.0	349 16.5	28.5	40 07.7	26.1	203 52.8	21.0				
	06	239 59.8		226 54.2	N 9 18.1	4 17.8	S 18 28.8	55 10.3	S 0 26.0	218 55.1	N 6 21.1	Rasalhague	96 37.6	N 12 34.5
	07	255 02.3		241 55.1	19.1	19 19.0	29.1	70 13.0	25.9	233 57.3	21.1	Regulus	208 18.7	N 12 07.1
	08	270 04.8		256 56.0	20.2	34 20.3	29.4	85 15.7	25.8	248 59.6	21.2	Rigel	281 44.1	S 8 14.2
	09	285 07.2		271 56.8	21.2	49 21.6	29.6	100 18.3	25.7	264 01.8	21.3	Rigel Kent.	140 37.5	S 60 42.3
	10	300 09.7		286 57.7	22.2	64 22.8	29.9	115 21.0	25.7	279 04.1	21.4	Sabik	102 51.0	S 15 41.5
11	315 12.1		301 58.6	23.3	79 24.1	30.2	130 23.7	25.6	294 06.3	21.5				
	12	330 14.6		316 59.5	N 9 24.3	94 25.3	S 18 30.5	145 26.3	S 0 25.5	309 08.5	N 6 21.6	Schedar	350 19.5	N 56 22.3
	13	345 17.1		332 00.3	25.4	109 26.6	30.8	160 29.0	25.4	324 10.8	21.7	Shaula	97 07.5	S 37 05.0
	14	0 19.5		347 01.2	26.4	124 27.9	31.0	175 31.7	25.3	339 13.0	21.8	Sirius	259 03.0	S 16 40.4
	15	15 22.0		2 02.1	27.5	139 29.1	31.3	190 34.4	25.2	354 15.3	21.9	Spica	159 06.4	S 11 00.2
	16	30 24.5		17 03.0	28.5	154 30.4	31.6	205 37.0	25.1	9 17.5	22.0	Suhail	223 16.8	S 43 18.5
17	45 26.9		32 03.9	29.6	169 31.7	31.9	220 39.7	25.0	24 19.8	22.1				
	18	60 29.4		47 04.8	N 9 30.6	184 32.9	S 18 32.2	235 42.4	S 0 24.9	39 22.0	N 6 22.2	Vega	81 01.9	N 38 44.8
	19	75 31.9		62 05.7	31.7	199 34.2	32.5	250 45.1	24.8	54 24.2	22.3	Zuben'ubi	137 42.4	S 15 55.0
	20	90 34.3		77 06.6	32.7	214 35.5	32.7	265 47.7	24.7	69 26.5	22.4			
	21	105 36.8		92 07.4	33.7	229 36.7	33.0	280 50.4	24.6	84 28.7	22.5			
	22	120 39.2		107 08.3	34.8	244 38.0	33.3	295 53.1	24.5	99 31.0	22.6			
23	135 41.7		122 09.2	35.8	259 39.3	33.6	310 55.7	24.4	114 33.2	22.7				
Mer. Pass. 14 02.6		v 0.8		d 1.1		v 1.3 d 0.3		v 2.7 d 0.1		v 2.2 d 0.1		S.H.A.		Mer. Pass. m
												Venus		347 42.9 14 53
												Mars		124 54.1 5 45
												Jupiter		175 04.5 2 24
												Saturn		339 01.8 15 26

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise										
		G.H.A.	Dec.	G.H.A.	°	Dec.	d	H.P.		Naut.	Civil		18	19	20	21							
d	h	°	'	°	'	°	'	'	°	h	m	h	m	h	m	h	m	h	m				
18	00	176	29.4	S 11	46.1	159	46.9	12.5	S	6	31.7	16.3	58.6	N 70	05 58	07 09	08 15	08 25	07 58	07 29	06 55		
	01	191	29.4		45.2	174	18.4	12.6		5	15.4	16.4	58.6	68	05 58	07 03	08 02	08 21	08 00	07 39	07 14		
	02	206	29.5		44.3	188	50.0	12.7		5	59.0	16.3	58.6	66	05 58	06 57	07 52	08 16	08 02	07 47	07 30		
	03	221	29.5		43.5	203	21.7	12.7		5	42.7	16.4	58.5	64	05 57	06 52	07 42	08 13	08 03	07 53	07 43		
	04	236	29.6		42.6	217	53.4	12.8		5	26.3	16.4	58.5	62	05 57	06 48	07 35	08 10	08 05	07 59	07 54		
	05	251	29.6		41.7	232	25.2	12.8		5	09.9	16.4	58.5	60	05 56	06 45	07 28	08 07	08 06	08 04	08 03		
	06	266	29.7	S 11	40.8	246	57.0	12.9	S	4	53.5	16.4	58.4	N 58	05 56	06 41	07 22	08 05	08 07	08 09	08 12		
	07	281	29.7		39.9	261	28.9	13.0		4	37.1	16.4	58.4	56	05 55	06 38	07 17	08 03	08 08	08 13	08 19		
	08	296	29.8		39.1	276	00.9	13.0		4	20.7	16.4	58.4	54	05 55	06 36	07 12	08 01	08 09	08 17	08 26		
	09	311	29.8		38.2	290	32.9	13.1		4	04.3	16.3	58.3	52	05 54	06 33	07 08	07 59	08 10	08 20	08 32		
TUESDAY	10	326	29.9		37.3	305	05.0	13.1		3	48.0	16.4	58.3	50	05 53	06 30	07 04	07 58	08 10	08 23	08 37		
	11	341	29.9		36.4	319	37.1	13.2		3	31.6	16.4	58.3	45	05 51	06 25	06 55	07 54	08 12	08 30	08 49		
	12	356	30.0	S 11	35.5	334	09.3	13.2	S	3	15.2	16.4	58.2	N 40	05 49	06 20	06 48	07 51	08 13	08 35	08 58		
	13	11	30.0		34.6	348	41.5	13.3		2	58.8	16.4	58.2	35	05 47	06 16	06 42	07 49	08 15	08 40	09 07		
	14	26	30.1		33.8	3	13.8	13.3		2	42.4	16.4	58.2	30	05 44	06 12	06 37	07 46	08 16	08 45	09 14		
	15	41	30.1		32.9	17	46.1	13.4		2	26.0	16.3	58.1	20	05 39	06 05	06 27	07 42	08 18	08 52	09 27		
	16	56	30.2		32.0	32	18.5	13.5		2	09.7	16.4	58.1	N 10	05 33	05 57	06 19	07 39	08 19	08 59	09 39		
	17	71	30.3		31.1	46	51.0	13.4		1	53.3	16.3	58.1	0	05 25	05 49	06 11	07 36	08 21	09 05	09 49		
	18	86	30.3	S 11	30.2	61	23.4	13.6	S	1	37.0	16.4	58.0	S 10	05 16	05 41	06 02	07 33	08 23	09 11	10 00		
	19	101	30.4		29.3	75	56.0	13.5		1	20.6	16.3	58.0	20	05 04	05 31	05 54	07 29	08 24	09 18	10 12		
WEDNESDAY	20	116	30.4		28.4	90	28.5	13.6		1	04.3	16.3	58.0	30	04 49	05 19	05 43	07 25	08 27	09 26	10 25		
	21	131	30.5		27.6	105	01.1	13.7		0	48.0	16.3	57.9	35	04 40	05 11	05 37	07 23	08 28	09 31	10 33		
	22	146	30.5		26.7	119	33.8	13.7		0	31.7	16.2	57.9	40	04 28	05 02	05 31	07 20	08 29	09 36	10 42		
	23	161	30.6		25.8	134	06.5	13.7	S	0	15.5	16.3	57.9	45	04 14	04 52	05 23	07 17	08 31	09 42	10 52		
	00	176	30.6	S 11	24.9	148	39.2	13.8	N	0	00.8	16.2	57.8	S 50	03 55	04 38	05 13	07 14	08 33	09 50	11 05		
	01	191	30.7		24.0	163	12.0	13.8		0	17.0	16.2	57.8	52	03 46	04 32	05 09	07 12	08 34	09 53	11 11		
	02	206	30.8		23.1	177	44.8	13.8		0	33.2	16.2	57.8	54	03 35	04 25	05 04	07 10	08 35	09 57	11 18		
	03	221	30.8		22.2	192	17.6	13.9		0	49.4	16.2	57.7	56	03 23	04 17	04 58	07 08	08 36	10 01	11 25		
	04	236	30.9		21.3	206	50.5	13.9		1	05.6	16.1	57.7	58	03 09	04 08	04 52	07 06	08 37	10 06	11 34		
	05	251	30.9		20.4	221	23.4	13.9		1	21.7	16.1	57.7	S 60	02 51	03 57	04 45	07 03	08 38	10 11	11 43		
THURSDAY	06	266	31.0	S 11	19.6	235	56.3	14.0	N	1	37.8	16.1	57.6										
	07	281	31.0		18.7	250	29.3	14.0		1	53.9	16.1	57.6	Lat.	Sun-set	Twilight		Moonset					
	08	296	31.1		17.8	265	02.3	14.0		2	10.0	16.0	57.6			Civil	Naut.	18	19	20	21		
	09	311	31.2		16.9	279	35.3	14.1		2	26.0	16.0	57.5		°	h	m	h	m	h	m	h	m
	10	326	31.2		16.0	294	08.4	14.0		2	42.0	16.0	57.5	N 72	15 57	17 13	18 32	19 42	21 56	24 19	00 19		
	11	341	31.3		15.1	308	41.4	14.1		2	58.0	15.9	57.5	N 70	16 14	17 21	18 32	19 43	21 48	23 56	26 30		
	12	356	31.3	S 11	14.2	323	14.5	14.1	N	3	13.9	15.9	57.4	68	16 27	17 27	18 32	19 45	21 41	23 38	25 48		
	13	11	31.4		13.3	337	47.6	14.2		3	29.8	15.8	57.4	66	16 27	17 32	18 32	19 46	21 41	23 38	25 48		
	14	26	31.5		12.4	352	20.8	14.1		3	45.6	15.9	57.4	68	16 38	17 32	18 32	19 46	21 35	23 24	25 20		
	15	41	31.5		11.5	6	53.9	14.2		4	01.5	15.7	57.3	64	16 47	17 37	18 32	19 47	21 30	23 13	24 59		
FRIDAY	16	56	31.6		10.6	21	27.1	14.2		4	17.2	15.8	57.3	62	16 54	17 41	18 32	19 48	21 26	23 03	24 42		
	17	71	31.6		09.7	36	00.3	14.2		4	33.0	15.7	57.2	60	17 01	17 44	18 33	19 49	21 23	22 55	24 28		
	18	86	31.7	S 11	08.9	50	33.5	14.2	N	4	48.7	15.7	57.2	N 58	17 07	17 48	18 33	19 50	21 19	22 48	24 16		
	19	101	31.8		08.0	65	06.7	14.3		5	04.4	15.6	57.2	56	17 12	17 50	18 34	19 50	21 17	22 41	24 06		
	20	116	31.8		07.1	79	40.0	14.2		5	20.0	15.6	57.1	54	17 17	17 53	18 34	19 51	21 14	22 36	23 57		
	21	131	31.9		06.2	94	13.2	14.3		5	35.6	15.5	57.1	52	17 21	17 56	18 35	19 51	21 12	22 30	23 49		
	22	146	32.0		05.3	108	46.5	14.3		5	51.1	15.5	57.1	50	17 25	17 58	18 36	19 52	21 10	22 26	23 41		
	23	161	32.0		04.4	123	19.8	14.3		6	06.6	15.4	57.0	45	17 33	18 03	18 37	19 53	21 05	22 16	23 26		
	00	176	32.1	S 11	03.5	137	53.1	14.2	N	6	22.0	15.4	57.0	N 40	17 40	18 08	18 39	19 53	21 01	22 08	23 13		
	01	191	32.1		02.6	152	26.3	14.3		6	37.4	15.4	57.0	35	17 46	18 12	18 42	19 54	20 58	22 01	23 03		
02	206	32.2		01.7	166	59.6	14.4		6	52.8	15.3	56.9	30	17 52	18 16	18 44	19 55	20 55	21 55	22 53			
03	221	32.3		11 00.8	181	33.0	14.3		7	08.1	15.2	56.9	20	18 01	18 24	18 49	19 56	20 50	21 44	22 38			
04	236	32.3	10	59.9	196	06.3	14.3		7	23.3	15.2	56.9	N 10	18 09	18 31	18 55	19 57	20 46	21 35	22 24			
05	251	32.4		59.0	210	39.6	14.3		7	38.5	15.2	56.8	0	18 17	18 38	19 03	19 57	20 42	21 26	22 11			
SATURDAY	06	266	32.5	S 10	58.1	225	12.9	14.3	N	7	53.7	15.1	56.8	S 10	18 25	18 47	19 12	19 58	20 38	21 18	21 58		
	07	281	32.5		57.2	239	46.2	14.3		8	08.8	15.0	56.8	20	18 34	18 57	19 23	19 59	20 34	21 08	21 44		
	08	296	32.6		56.3	254	19.5	14.4		8	23.8	15.0	56.7	30	18 44	19 09	19 38	20 00	20 29	20 58	21 29		
	09	311	32.7		55.4	268	52.9	14.3		8	38.8	15.0	56.7	35	18 50	19 16	19 47	20 00	20 26	20 52	21 20		
	10	326	32.7		54.5	283	26.2	14.3		8	53.8	14.8	56.7	40	18 57	19 25	19 59	20 01	20 23	20 45	21 10		
	11	341	32.8		53.6	297	59.5	14.3		9	08.6	14.9	56.6	45	19 04	19 35	20 13	20 02	20 19	20 38	20 58		

	ARIES			VENUS -4.3			MARS +0.7			JUPITER -2.0			SATURN +0.8			STARS		
G.M.T.	G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	Name	S.H.A.	Dec.
d h	°	'	°	°	'	°	°	'	°	°	'	°	°	'	°		°	°
21 00	150	44.2	137 10.1 N 9 36.9	274	40.5 S 18 33.9	325 58.4 S 0 24.3	129 35.4 N 6 22.8	Acamar	315 43.7	S 40 25.8								
	01	165 46.6	152 11.0 37.9	289 41.8 34.1	341 01.1 24.2	144 37.7 22.9	Achernar	335 51.6	S 57 23.8									
	02	180 49.1	167 11.9 38.9	304 43.1 34.4	356 03.8 24.1	159 39.9 23.0	Acrux	173 46.6	S 62 55.6									
	03	195 51.6	182 12.8 40.0	319 44.3 34.7	11 06.4 24.0	174 42.2 23.1	Adhara	255 38.6	S 28 55.8									
	04	210 54.0	197 13.7 41.0	334 45.6 35.0	26 09.1 23.9	189 44.4 23.2	Aldebaran	291 27.8	N 16 27.0									
05	225 56.5	212 14.6 42.1	349 46.9 35.2	41 11.8 23.8	204 46.6 23.3													
06	240 59.0	227 15.5 N 9 43.1	4 48.1 S 18 35.5	56 14.5 S 0 23.7	219 48.9 N 6 23.4	Alioth	166 49.2	N 56 07.3										
07	256 01.4	242 16.5 44.1	19 49.4 35.8	71 17.1 23.6	234 51.1 23.5	Alkaid	153 24.7	N 49 27.6										
08	271 03.9	257 17.4 45.2	34 50.7 36.1	86 19.8 23.5	249 53.4 23.6	Al Na'ir	28 25.9	S 47 06.8										
F R I 09	286 06.4	272 18.3 46.2	49 51.9 36.4	101 22.5 23.4	264 55.6 23.7	Anilim	276 20.2	S 1 13.2										
	10	301 08.8	287 19.2 47.2	64 53.2 36.6	116 25.2 23.3	279 57.8 23.8	Alphard	218 28.6	S 8 31.5									
	11	316 11.3	302 20.1 48.3	79 54.5 36.9	131 27.8 23.2	295 00.1 23.9												
	12	331 13.7	317 21.0 N 9 49.3	94 55.8 S 18 37.2	146 30.5 S 0 23.1	310 02.3 N 6 24.0	Alphecca	126 39.2	N 26 48.7									
	13	346 16.2	332 21.9 50.3	109 57.0 37.5	161 33.2 23.0	325 04.6 24.1	Alpheratz	358 18.6	N 28 55.2									
D A Y 14	1 18.7	347 22.9 51.3	124 58.3 37.7	176 35.9 22.9	340 06.8 24.2	Altair	62 41.1	N 8 46.9										
	15	16 21.1 2 23.8 52.4	139 59.6 38.0	191 38.5 22.8	355 09.0 24.3	Ankaa	353 48.8	S 42 28.6										
	16	31 23.6	17 24.7 53.4	155 00.8 38.3	206 41.2 22.7	10 11.3 24.4	Antares	113 07.4	S 26 22.0									
	17	46 26.1	32 25.6 54.4	170 02.1 38.6	221 43.9 22.6	25 13.5 24.4												
	18	61 28.5	47 26.6 N 9 55.5	185 03.4 S 18 38.8	236 46.6 S 0 22.5	40 15.8 N 6 24.5	Arcturus	146 26.0	N 19 20.3									
19	76 31.0	62 27.5 56.5	200 04.7 39.1	251 49.3 22.4	55 18.0 24.6	Atria	108 39.6	S 68 58.3										
20	91 33.5	77 28.4 57.5	215 05.9 39.4	266 51.9 22.3	70 20.2 24.7	Avior	234 31.4	S 59 24.6										
21	106 35.9	92 29.4 58.5	230 07.2 39.7	281 54.6 22.2	85 22.5 24.8	Bellatrix	279 07.8	N 6 19.4										
22	121 38.4	107 30.3 59.6	245 08.5 40.0	296 57.3 22.1	100 24.7 24.9	Betelgeuse	271 37.3	N 7 24.2										
23	136 40.9	122 31.2 10 00.6	260 09.8 40.2	312 00.0 21.9	115 27.0 25.0													
22 00	151 43.3	137 32.2 N 10 01.6	275 11.0 S 18 40.5	327 02.6 S 0 21.8	130 29.2 N 6 25.1	Canopus	264 10.7	S 52 40.8										
	01	166 45.8	152 33.1 02.6	290 12.3 40.8	342 05.3 21.7	145 31.4 25.2	Capella	281 23.8	N 45 58.4									
	02	181 48.2	167 34.0 03.6	305 13.6 41.0	357 08.0 21.6	160 33.7 25.3	Deneb	49 54.8	N 45 09.9									
	03	196 50.7	182 35.0 04.7	320 14.9 41.3	12 10.7 21.5	175 35.9 25.4	Denebola	183 07.4	N 14 44.5									
	04	211 53.2	197 35.9 05.7	335 16.1 41.6	27 13.4 21.4	190 38.1 25.5	Diphda	349 29.6	S 18 09.5									
05	226 55.6	212 36.9 06.7	350 17.4 41.9	42 16.0 21.3	205 40.4 25.6													
06	241 58.1	227 37.8 N 10 07.7	5 18.7 S 18 42.1	57 18.7 S 0 21.2	220 42.6 N 6 25.7	Dubhe	194 31.5	N 61 55.0										
07	257 00.6	242 38.8 08.7	20 20.0 42.4	72 21.4 21.1	235 44.9 25.8	Elath	278 54.8	N 28 35.2										
08	272 03.0	257 39.7 09.8	35 21.2 42.7	87 24.1 21.0	250 47.1 25.9	Eltanin	91 01.9	N 51 29.1										
09	287 05.5	272 40.7 10.8	50 22.5 43.0	102 26.8 20.9	265 49.3 26.0	Enif	34 20.3	N 9 43.8										
10	302 08.0	287 41.6 11.8	65 23.8 43.2	117 29.4 20.8	280 51.6 26.1	Fomalhaut	16 01.0	S 29 47.3										
11	317 10.4	302 42.6 12.8	80 25.1 43.5	132 32.1 20.7	295 53.8 26.2													
12	332 12.9	317 43.5 N 10 13.8	95 26.3 S 18 43.8	147 34.8 S 0 20.6	310 56.0 N 6 26.3	Gacrux	172 38.1	S 56 56.4										
13	347 15.4	332 44.5 14.8	110 27.6 44.1	162 37.5 20.5	325 58.3 26.4	Gienah	176 26.5	S 17 22.3										
14	2 17.8	347 45.5 15.8	125 28.9 44.3	177 40.2 20.4	341 00.5 26.5	Hadar	149 35.5	S 60 13.4										
15	17 20.3	2 46.4 16.9	140 30.2 44.6	192 42.9 20.3	356 02.8 26.6	Hamal	328 38.8	N 23 19.1										
16	32 22.7	17 47.4 17.9	155 31.5 44.9	207 45.5 20.2	11 05.0 26.7	Kaus Aust.	84 28.3	S 34 24.2										
17	47 25.2	32 48.4 18.9	170 32.7 45.1	222 48.2 20.1	26 07.2 26.8													
18	62 27.7	47 49.3 N 10 19.9	185 34.0 S 18 45.4	237 50.9 S 0 20.0	41 09.5 N 6 26.9	Kochab	137 17.6	N 74 16.5										
19	77 30.1	62 50.3 20.9	200 35.3 45.7	252 53.6 19.9	56 11.7 27.0	Markab	14 12.0	N 15 02.2										
20	92 32.6	77 51.3 21.9	215 36.6 46.0	267 56.3 19.8	71 13.9 27.1	Menkar	314 50.1	N 3 58.2										
21	107 35.1	92 52.2 22.9	230 37.9 46.2	282 59.0 19.7	86 16.2 27.2	Menkent	148 47.0	S 36 13.2										
22	122 37.5	107 53.2 23.9	245 39.1 46.5	298 01.6 19.6	101 18.4 27.3	Miaplacidus	221 46.4	S 69 35.4										
23	137 40.0	122 54.2 24.9	260 40.4 46.8	313 04.3 19.5	116 20.7 27.4													
23 00	152 42.5	137 55.2 N 10 25.9	275 41.7 S 18 47.0	328 07.0 S 0 19.4	131 22.9 N 6 27.5	Mirfak	309 28.6	N 49 45.4										
	01	167 44.9	152 56.2 26.9	290 43.0 47.3	343 09.7 19.3	146 25.1 27.6	Nunki	76 39.9	S 26 20.3									
	02	182 47.4	167 57.1 27.9	305 44.3 47.6	358 12.4 19.2	161 27.4 27.7	Pecock	54 12.1	S 56 50.2									
	03	197 49.8	182 58.1 29.0	320 45.5 47.9	13 15.1 19.1	176 29.6 27.8	Pollux	244 08.2	N 28 06.2									
	04	212 52.3	197 59.1 30.0	335 46.8 48.1	28 17.7 19.0	191 31.8 27.9	Procyon	245 34.4	N 5 18.3									
05	227 54.8	213 00.1 31.0	350 48.1 48.4	43 20.4 18.9	206 34.1 28.0													
06	242 57.2	228 01.1 N 10 32.0	5 49.4 S 18 48.7	58 23.1 S 0 18.8	221 36.3 N 6 28.1	Rasalhague	96 37.6	N 12 34.5										
07	257 59.7	243 02.1 33.0	20 50.7 48.9	73 25.8 18.7	236 38.5 28.2	Regulus	208 18.7	N 12 07.1										
08	273 02.2	258 03.1 34.0	35 52.0 49.2	88 28.5 18.6	251 40.8 28.3	Rigel	281 44.1	S 8 14.2										
09	288 04.6	273 04.1 35.0	50 53.2 49.5	103 31.2 18.4	266 43.0 28.4	Rigel Kent.	140 37.4	S 60 42.3										
10	303 07.1	288 05.1 36.0	65 54.5 49.7	118 33.9 18.3	281 45.2 28.5	Sabik	102 51.0	S 15 41.5										
11	318 09.6	303 06.1 36.9	80 55.8 50.0	133 36.5 18.2	296 47.5 28.6													
12	333 12.0	318 07.1 N 10 37.9	95 57.1 S 18 50.3	148 39.2 S 0 18.1	311 49.7 N 6 28.7	Schedar	350 19.5	N 56 22.2										
13	348 14.5	333 08.1 38.9	110 58.4 50.6	163 41.9 18.0	326 51.9 28.8	Shaula	97 07.5	S 37 05.0										
14	3 16.9	348 09.1 39.9	125 59.7 50.8	178 44.6 17.9	341 54.2 28.9	Sirius	259 03.0	S 16 40.4										
15	18 19.4	3 10.1 40.9	141 00.9 51.1	193 47.3 17.8	356 56.4 29.0	Spica	159 06.3	S 11 00.2										
16	33 21.9	18 11.1 41.9	156 02.2 51.4	208 50.0 17.7	11 58.6 29.1	Suhail	223 16.8	S 43 18.5										
17	48 24.3	33 12.1 42.9	171 03.5 51.6	223 52.7 17.6	27 00.9 29.2													
18	63 26.8	48 13.1 N 10 43.9	186 04.8 S 18 51.9	238 55.4 S 0 17.5	42 03.1 N 6 29.3	Vega	81 01.9	N 38 44.8										
19	78 29.3	63 14.1 44.9	201 06.1 52.2	253 58.0 17.4	57 05.3 29.4	Zuben'ubi	137 42.4	S 15 55.0										
20	93 31.7	78 15.1 45.9	216 07.4 52.4	269 00.7 17.3	72 07.6 29.5													
21	108 34.2	93 16.2 46.9	231 08.7 52.7	284 03.4 17.2	87 09.8 29.6													
22	123 36.7	108 17.2 47.9	246 10.0 53.0	299 06.1 17.1	102 12.0 29.7													
23	138 39.1	123 18.2 48.9	261 11.2 53.2	314 08.8 17.0	117 14.3 29.8													
Mer. Pass. 13 50.8																		
h m																		
v 1.0 d 1.0																		
v 1.3 d 0.3																		
v 2.7 d 0.1																		
v 2.2 d 0.1																		
S.H.A. Mer. Pass.																		
Venus 345 48.9 14 49																		
Mars 123 27.7 5 39																		
Jupiter 175 19.3 2 11																		
Saturn 338 45.9 15 16																		

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise				
		G.H.A.	Dec.	G.H.A.	v	Dec.	d		H.P.	Naut.		Civil	21	22	23	24
d	h	o	o	o	o	o	o	o	h m	h m	h m	h m	h m	h m	h m	h m
21	00	176 33.7	S 10 41.9	127 11.9	14.2	N 12 16.5	14.0	56.2	N 72	05 45	07 03	08 15	06 29	□	□	□
	01	191 33.8	41.0	141 45.1	14.1	12 30.5	13.9	56.2	N 70	05 46	06 56	08 01	06 55	05 55	□	□
	02	206 33.8	40.1	156 18.2	14.1	12 44.4	13.9	56.1	68	05 47	06 51	07 50	07 14	06 39	□	□
	03	221 33.9	39.2	170 51.3	14.2	12 58.3	13.7	56.1	66	05 48	06 47	07 40	07 30	07 08	06 27	□
	04	236 34.0	38.3	185 24.5	14.1	13 12.0	13.7	56.1	64	05 48	06 43	07 32	07 43	07 30	07 12	06 11
05	251 34.1	37.4	199 57.6	14.0	13 25.7	13.7	56.0	62	05 48	06 40	07 25	07 54	07 48	07 41	07 32	
06	266 34.1	S 10 36.5	214 30.6	14.1	N 13 39.4	13.6	56.0	60	05 49	06 37	07 19	08 03	08 03	08 04	08 09	
07	281 34.2	35.6	229 03.7	14.0	13 53.0	13.4	56.0	N 58	05 49	06 34	07 14	08 12	08 16	08 23	08 35	
08	296 34.3	34.7	243 36.7	14.0	14 06.4	13.5	56.0	56	05 48	06 31	07 09	08 19	08 27	08 38	08 56	
F 09	311 34.3	33.8	258 09.7	14.0	14 19.9	13.3	55.9	54	05 48	06 29	07 05	08 26	08 37	08 51	09 13	
R 10	326 34.4	32.9	272 42.7	14.0	14 33.2	13.3	55.9	52	05 48	06 27	07 01	08 32	08 45	09 03	09 28	
I 11	341 34.5	32.0	287 15.7	13.9	14 46.5	13.1	55.9	50	05 48	06 25	06 58	08 37	08 53	09 14	09 41	
D 12	356 34.6	S 10 31.1	301 48.6	13.9	N 14 59.6	13.1	55.9	45	05 47	06 20	06 50	08 49	09 10	09 36	10 07	
A 13	11 34.6	30.2	316 21.5	13.9	15 12.7	13.1	55.8	N 40	05 45	06 16	06 44	08 58	09 24	09 53	10 28	
Y 14	26 34.7	29.3	330 54.4	13.8	15 25.8	12.9	55.8	35	05 43	06 13	06 39	09 07	09 36	10 08	10 46	
15	41 34.8	28.3	345 27.2	13.8	15 38.7	12.9	55.8	30	05 42	06 09	06 34	09 14	09 46	10 21	11 01	
16	56 34.9	27.4	0 00.0	13.8	15 51.6	12.8	55.7	20	05 37	06 03	06 25	09 27	10 04	10 44	11 27	
17	71 34.9	26.5	14 32.8	13.8	16 04.4	12.7	55.7	N 10	05 32	05 56	06 17	09 39	10 20	11 03	11 49	
18	86 35.0	S 10 25.6	29 05.6	13.7	N 16 17.1	12.6	55.7	0	05 25	05 49	06 10	09 49	10 35	11 21	12 10	
19	101 35.1	24.7	43 38.3	13.7	16 29.7	12.5	55.6	S 10	05 16	05 41	06 03	10 00	10 49	11 40	12 31	
20	116 35.2	23.8	58 11.0	13.7	16 42.2	12.5	55.6	20	05 06	05 32	05 55	10 12	11 05	12 00	12 54	
21	131 35.2	22.9	72 43.7	13.6	16 54.7	12.4	55.6	30	04 52	05 21	05 46	10 25	11 24	12 23	13 21	
22	146 35.3	22.0	87 16.3	13.6	17 07.1	12.2	55.6	35	04 43	05 14	05 40	10 33	11 35	12 36	13 36	
23	161 35.4	21.1	101 48.9	13.6	17 19.3	12.2	55.5	40	04 32	05 06	05 34	10 42	11 47	12 52	13 54	
23	161 35.4	21.1	101 48.9	13.6	17 19.3	12.2	55.5	45	04 19	04 56	05 27	10 52	12 02	13 11	14 17	
22	00	176 35.5	S 10 20.2	116 21.5	13.5	N 17 31.5	12.1	55.5	S 50	04 02	04 44	05 18	11 05	12 20	13 34	14 45
	01	191 35.6	19.3	130 54.0	13.5	17 43.6	12.1	55.5	52	03 53	04 38	05 14	11 11	12 29	13 46	14 59
	02	206 35.6	18.4	145 26.5	13.4	17 55.7	11.9	55.4	54	03 43	04 32	05 10	11 18	12 39	13 59	15 15
	03	221 35.7	17.5	159 58.9	13.4	18 07.6	11.8	55.4	56	03 32	04 24	05 05	11 25	12 50	14 14	15 34
	04	236 35.8	16.5	174 31.3	13.4	18 19.4	11.8	55.4	58	03 19	04 16	04 59	11 34	13 03	14 32	15 57
05	251 35.9	15.6	189 03.7	13.3	18 31.2	11.6	55.4	S 60	03 03	04 06	04 53	11 43	13 17	14 53	16 29	
06	266 35.9	S 10 14.7	203 36.0	13.3	N 18 42.8	11.6	55.3									
07	281 36.0	13.8	218 08.3	13.3	18 54.4	11.5	55.3	Lat.	Sun-set	Twilight		Moonset				
08	296 36.1	12.9	232 40.6	13.2	19 05.9	11.4	55.3			Civil	Naut.	21	22	23	24	
A 09	311 36.2	12.0	247 12.8	13.2	19 17.3	11.3	55.3	o	h m	h m	h m	h m	h m	h m	h m	h m
T 10	326 36.3	11.1	261 45.0	13.1	19 28.6	11.2	55.2	N 72	16 13	17 27	18 45	00 19	□	□	□	□
U 11	341 36.3	10.2	276 17.1	13.1	19 39.8	11.1	55.2	N 70	16 28	17 33	18 43	26 30	02 30	□	□	□
R 12	356 36.4	S 10 09.3	290 49.2	13.0	N 19 50.9	11.0	55.2	68	16 39	17 37	18 42	25 48	01 48	□	□	□
D 13	11 36.5	08.3	305 21.2	13.1	20 01.9	10.9	55.2	66	16 48	17 42	18 41	25 20	01 20	03 38	□	□
A 14	26 36.6	07.4	319 53.3	12.9	20 12.8	10.8	55.1	64	16 56	17 45	18 41	24 59	00 59	02 54	05 35	□
Y 15	41 36.7	06.5	334 25.2	12.9	20 23.6	10.7	55.1	62	17 03	17 49	18 40	24 42	00 42	02 25	04 15	□
16	56 36.8	05.6	348 57.1	12.9	20 34.3	10.6	55.1	60	17 09	17 52	18 40	24 28	00 28	02 03	03 38	□
17	71 36.8	04.7	3 29.0	12.8	20 44.9	10.5	55.1	N 58	17 14	17 54	18 40	24 16	00 16	01 45	03 13	□
18	86 36.9	S 10 03.8	18 00.8	12.8	N 20 55.4	10.4	55.1	56	17 19	17 57	18 40	24 06	00 06	01 30	02 52	□
19	101 37.0	02.9	32 32.6	12.8	21 05.8	10.3	55.0	54	17 23	17 59	18 40	23 57	25 17	01 17	02 35	□
20	116 37.1	01.9	47 04.4	12.7	21 16.1	10.2	55.0	52	17 27	18 01	18 40	23 49	25 06	01 06	02 21	□
21	131 37.2	01.0	61 36.1	12.6	21 26.3	10.2	55.0	50	17 30	18 03	18 40	23 41	24 56	00 56	02 08	□
22	146 37.2	10 00.1	76 07.7	12.6	21 36.5	10.0	55.0	45	17 37	18 07	18 41	23 26	24 35	00 35	01 43	□
23	161 37.3	9 59.2	90 39.3	12.6	21 46.5	9.9	54.9	N 40	17 44	18 11	18 43	23 13	24 18	00 18	01 22	□
23 00	176 37.4	S 9 58.3	105 10.9	12.5	N 21 56.4	9.8	54.9	35	17 49	18 15	18 44	23 03	24 04	00 04	01 05	□
01	191 37.5	57.4	119 42.4	12.5	22 06.2	9.6	54.9	30	17 54	18 18	18 46	22 53	23 52	24 51	00 51	□
02	206 37.6	56.5	134 13.9	12.4	22 15.8	9.6	54.9	20	18 02	18 25	18 50	22 38	23 32	24 26	00 26	□
03	221 37.7	55.5	148 45.3	12.3	22 25.4	9.5	54.9	N 10	18 10	18 31	18 56	22 24	23 14	24 05	00 05	□
04	236 37.8	54.6	163 16.6	12.4	22 34.9	9.4	54.8	0	18 17	18 38	19 02	22 11	22 57	23 45	24 35	□
05	251 37.8	53.7	177 48.0	12.2	22 44.3	9.3	54.8	S 10	18 24	18 45	19 10	21 58	22 40	23 25	24 13	□
06	266 37.9	S 9 52.8	192 19.2	12.3	N 22 53.6	9.1	54.8	20	18 32	18 54	19 21	21 44	22 22	23 04	23 49	□
07	281 38.0	51.9	206 50.5	12.1	23 02.7	9.1	54.8	30	18 41	19 05	19 35	21 29	22 02	22 40	23 22	□
08	296 38.1	51.0	221 21.6	12.2	23 11.8	8.9	54.8	35	18 46	19 12	19 43	21 20	21 50	22 25	23 06	□
S 09	311 38.2	50.0	235 52.8	12.1	23 20.7	8.8	54.7	40	18 52	19 20	19 54	21 10	21 37	22 09	22 47	□
U 10	326 38.3	49.1	250 23.9	12.0	23 29.5	8.7	54.7	45	18 59	19 30	20 07	20 58	21 21	21 49	22 24	□
N 11	341 38.4	48.2	264 54.9	12.0	23 38.2	8.6	54.7	S 50	19 08	19 42	20 24	20 43	21 01	21 25	21 56	□
D 12	356 38.4	S 9 47.3	279 25.9	11.9	N 23 46.8	8.5	54.7	52	19 12	19 48	20 32	20 36	20 52	21 13	21 42	□
A 13	11 38.5	46.4	293 56.8	11.9	23 55.3	8.4	54.7	54	19 16	19 54	20 42	20 29	20 42	20 59	21 25	□
Y 14	26 38.6	45.4	308 27.7	11.8	24 03.7	8.3	54.7	56	19 21	20 01	20 53	20 21	20 30	20 44	21 06	□
15	41 38.7	44.5	322 58.5	11.8	24 12.0	8.1	54.6	58	19 26	20 09	21 05	20 12	20 17	20 25	20 42	□
1																

G.M.T.		ARIES		VENUS -4.3		MARS +0.6		JUPITER -2.0		SATURN +0.8		STARS					
		G.H.A.		G.H.A. Dec.		G.H.A. Dec.		G.H.A. Dec.		G.H.A. Dec.		Name S.H.A. Dec.					
d	h	°	'	°	'	°	'	°	'	°	'	°	'	°	'		
MONDAY	24 00	153 41.6	138 19.2	N 10 49.8	276 12.5	S 18 53.5	329 11.5	S 0 16.9	132 16.5	N 6 29.9	Acamar	315 43.7	S 40 25.8				
	01	168 44.1	153 20.2	5.08	291 13.8	53.8	344 14.2	16.8	147 18.7	30.0	Achernar	335 51.6	S 57 23.8				
	02	183 46.5	168 21.3	5.18	306 15.1	54.0	359 16.9	16.7	162 21.0	30.1	Acrux	173 46.6	S 62 55.6				
	03	198 49.0	183 22.3	5.28	321 16.4	54.3	14 19.6	16.6	177 23.2	30.2	Adhara	255 38.6	S 28 55.8				
	04	213 51.4	198 23.3	53.8	336 17.7	54.6	29 22.2	16.5	192 25.4	30.3	Aldebaran	291 27.8	N 16 27.0				
	05	228 53.9	213 24.4	54.8	351 19.0	54.8	44 24.9	16.3	207 27.7	30.4							
	06	243 56.4	228 25.4	N 10 55.8	6 20.3	S 18 55.1	59 27.6	S 0 16.2	222 29.9	N 6 30.5	Alioth	166 49.2	N 56 07.3				
	07	258 58.8	243 26.4	56.7	21 21.6	55.4	74 30.3	16.1	237 32.1	30.6	Alkaid	153 24.6	N 49 27.4				
	08	274 01.3	258 27.5	57.7	36 22.9	55.6	89 33.0	16.0	252 34.4	30.7	Al Na'ir	28 25.9	S 47 06.8				
	09	289 03.8	273 28.5	58.7	51 24.1	55.9	104 35.7	15.9	267 36.6	30.8	Alnilam	276 20.2	S 1 13.2				
	10	304 06.2	288 29.5	10 59.7	66 25.4	56.1	119 38.4	15.8	282 38.8	30.9	Alphard	218 28.6	S 8 31.5				
	11	319 08.7	303 30.6	11 00.7	81 26.7	56.4	134 41.1	15.7	297 41.1	31.0							
	12	334 11.2	318 31.6	N 11 01.6	96 28.0	S 18 56.7	149 43.8	S 0 15.6	312 43.3	N 6 31.1	Alphecca	126 39.2	N 26 48.7				
	13	349 13.6	333 32.7	02.6	111 29.3	56.9	164 46.5	15.5	327 45.5	31.2	Alpheratz	358 18.6	N 28 55.2				
	14	4 16.1	348 33.7	03.6	126 30.6	57.2	179 49.2	15.4	342 47.8	31.3	Altair	62 41.1	N 8 46.9				
	15	19 18.6	3 34.8	04.6	141 31.9	57.5	194 51.9	15.3	357 50.0	31.4	Ankaa	353 48.8	S 42 28.6				
	16	34 21.0	18 35.8	05.5	156 33.2	57.7	209 54.5	15.2	12 52.2	31.5	Antares	113 07.4	S 26 22.0				
	17	49 23.5	33 36.9	06.5	171 34.5	58.0	224 57.2	15.1	27 54.5	31.6							
	18	64 25.9	48 37.9	N 11 07.5	186 35.8	S 18 58.3	239 59.9	S 0 15.0	42 56.7	N 6 31.7	Arcturus	146 26.0	N 19 20.3				
	19	79 28.4	63 39.0	08.5	201 37.1	58.5	255 02.6	14.8	57 58.9	31.8	Atria	108 39.5	S 68 58.3				
	20	94 30.9	78 40.1	09.4	216 38.4	58.8	270 05.3	14.7	73 01.2	31.9	Avior	234 31.4	S 59 24.6				
	21	109 33.3	93 41.1	10.4	231 39.7	59.0	285 08.0	14.6	88 03.4	32.0	Bellatrix	279 07.8	N 6 19.4				
	22	124 35.8	108 42.2	11.4	246 41.0	59.3	300 10.7	14.5	103 05.6	32.1	Betelgeuse	271 37.4	N 7 24.2				
23	139 38.3	123 43.2	12.3	261 42.3	59.6	315 13.4	14.4	118 07.9	32.2								
TUESDAY	25 00	154 40.7	138 44.3	N 11 13.3	276 43.5	S 18 59.8	330 16.1	S 0 14.3	133 10.1	N 6 32.3	Canopus	264 10.7	S 52 40.8				
	01	169 43.2	153 45.4	14.3	291 44.8	19 00.1	345 18.8	14.2	148 12.3	32.4	Capella	281 23.8	N 45 58.4				
	02	184 45.7	168 46.5	15.2	306 46.1	00.4	0 21.5	14.1	163 14.5	32.5	Deneb	49 54.8	N 45 09.9				
	03	199 48.1	183 47.5	16.2	321 47.4	00.6	15 24.2	14.0	178 16.8	32.6	Denebola	183 07.4	N 14 44.5				
	04	214 50.6	198 48.6	17.2	336 48.7	00.9	30 26.9	13.9	193 19.0	32.7	Diphda	349 29.6	S 18 09.5				
	05	229 53.1	213 49.7	18.1	351 50.0	01.1	45 29.6	13.8	208 21.2	32.8							
	06	244 55.5	228 50.8	N 11 19.1	6 51.3	S 19 01.4	60 32.3	S 0 13.7	223 23.5	N 6 32.9	Dubhe	194 31.5	N 61 55.0				
	07	259 58.0	243 51.8	20.1	21 52.6	01.7	75 35.0	13.6	238 25.7	33.0	Elinach	278 54.8	N 28 35.2				
	08	275 00.4	258 52.9	21.0	36 53.9	01.9	90 37.7	13.4	253 27.9	33.1	Eltanin	91 01.9	N 51 29.1				
	09	290 02.9	273 54.0	22.0	51 55.2	02.2	105 40.4	13.3	268 30.2	33.2	Enif	34 20.3	N 9 43.8				
	10	305 05.4	288 55.1	22.9	66 56.5	02.4	120 43.1	13.2	283 32.4	33.3	Fomalhaut	16 01.0	S 29 47.3				
	11	320 07.8	303 56.2	23.9	81 57.8	02.7	135 45.7	13.1	298 34.6	33.4							
	12	335 10.3	318 57.3	N 11 24.9	96 59.1	S 19 03.0	150 48.4	S 0 13.0	313 36.8	N 6 33.5	Gacrux	172 38.1	S 56 56.4				
	13	350 12.8	333 58.4	25.8	112 00.4	03.2	165 51.1	12.9	328 39.1	33.6	Gienah	176 26.5	S 17 22.3				
	14	5 15.2	348 59.5	26.8	127 01.7	03.5	180 53.8	12.8	343 41.3	33.7	Hadar	149 35.4	S 60 13.4				
	15	20 17.7	4 00.6	27.7	142 03.0	03.7	195 56.5	12.7	358 43.5	33.8	Hamal	328 38.8	N 23 19.1				
	16	35 20.2	19 01.7	28.7	157 04.3	04.0	210 59.2	12.6	13 45.8	33.9	Kaus Aust.	84 28.3	S 34 24.2				
	17	50 22.6	34 02.8	29.6	172 05.6	04.3	226 01.9	12.5	28 48.0	34.0							
	18	65 25.1	49 03.9	N 11 30.6	187 06.9	S 19 04.5	241 04.6	S 0 12.4	43 50.2	N 6 34.1	Kochab	137 17.5	N 74 16.5				
	19	80 27.6	64 05.0	31.5	202 08.2	04.8	256 07.3	12.2	58 52.5	34.2	Markab	14 12.0	N 15 02.2				
	20	95 30.0	79 06.1	32.5	217 09.5	05.0	271 10.0	12.1	73 54.7	34.3	Menkar	314 50.1	N 3 58.2				
	21	110 32.5	94 07.2	33.4	232 10.8	05.3	286 12.7	12.0	88 56.9	34.4	Menkent	148 47.0	S 36 13.2				
	22	125 34.9	109 08.3	34.4	247 12.1	05.6	301 15.4	11.9	103 59.1	34.5	Miaplacidus	221 46.4	S 69 35.4				
23	140 37.4	124 09.4	35.3	262 13.5	05.8	316 18.1	11.8	119 01.4	34.6								
WEDNESDAY	26 00	155 39.9	139 10.5	N 11 36.3	277 14.8	S 19 06.1	331 20.8	S 0 11.7	134 03.6	N 6 34.7	Mirfak	309 28.6	N 49 45.4				
	01	170 42.3	154 11.6	37.2	292 16.1	06.3	346 23.5	11.6	149 05.8	34.8	Nunki	76 39.9	S 26 20.3				
	02	185 44.8	169 12.8	38.2	307 17.4	06.6	1 26.2	11.5	164 08.0	34.9	Peacock	54 12.1	S 56 50.2				
	03	200 47.3	184 13.9	39.1	322 18.7	06.8	16 28.9	11.4	179 10.3	35.0	Pollux	244 08.2	N 28 06.2				
	04	215 49.7	199 15.0	40.1	337 20.0	07.1	31 31.6	11.3	194 12.5	35.1	Procyon	245 34.4	N 5 18.3				
	05	230 52.2	214 16.1	41.0	352 21.3	07.4	46 34.3	11.2	209 14.7	35.2							
	06	245 54.7	229 17.3	N 11 42.0	7 22.6	S 19 07.6	61 37.0	S 0 11.0	224 17.0	N 6 35.3	Rasalhague	96 37.6	N 12 34.5				
	07	260 57.1	244 18.4	42.9	22 23.9	07.9	76 39.7	10.9	239 19.2	35.4	Regulus	208 18.7	N 12 07.1				
	08	275 59.6	259 19.5	43.8	37 25.2	08.1	91 42.4	10.8	254 21.4	35.5	Rigel	181 44.1	S 8 14.2				
	09	291 02.1	274 20.7	44.8	52 26.5	08.4	106 45.1	10.7	269 23.6	35.6	Rigel Kent.	240 37.4	S 60 42.3				
	10	306 04.5	289 21.8	45.7	67 27.8	08.6	121 47.8	10.6	284 25.9	35.7	Sabik	102 51.0	S 15 41.5				
	11	321 07.0	304 22.9	46.7	82 29.1	08.9	136 50.5	10.5	299 28.1	35.8							
	12	336 09.4	319 24.1	N 11 47.6	97 30.4	S 19 09.2	151 53.2	S 0 10.4	314 30.3	N 6 35.9	Schedar	350 19.5	N 56 22.2				
	13	351 11.9	334 25.2	48.5	112 31.7	09.4	166 55.9	10.3	329 32.6	36.0	Shaula	97 07.5	S 37 05.0				
	14	6 14.4	349 26.3	49.5	127 33.0	09.7	181 58.6	10.2	344 34.8	36.1	Sirius	259 03.0	S 16 40.4				
	15	21 16.8	4 27.5	50.4	142 34.4	09.9	197 01.3	10.1	359 37.0	36.2	Spica	159 06.3	S 11 00.2				
	16	36 19.3	19 28.6	51.3	157 35.7	10.2	212 04.0	09.9	14 39.2	36.3	Suhail	223 16.8	S 43 18.5				
	17	51 21.8	34 29.8	52.3	172 37.0	10.4	227 06.7	09.8	29 41.5	36.4							
	18	66 24.2	49 30.9	N 11 53.2	187 38.3	S 19 10.7	242 09.4	S 0 09.7	44 43.7	N 6 36.5	Vega	81 01.9	N 38 44.8				
	19	81 26.7	64 32.1	54.1	202 39.6	10.9	257 12.1	09.6	59 45.9	36.6	Zuben'ubi	137 42.4	S 15 55.0				
	20	96 29.2	79 33.2	55.1	217 40.9	11.2	272 14.8	09.5	74 48.1	36.7							
	21	111 31.6	94 34.4	56.0	232 42.2	11.4	287 17.5	09.4	89 50.4	36.8							
	22	126 34.1	109 35.6	56.9	247 43.5	11.7	302 20.2	09.3	104 52.6	36.9							
23	141 36.6	124 36.7	57.9	262 44.8	11.9	317 23.0	09.2	119 54.8	37.0								
Mer. Pass. 13 39.0		v	1.1	d	1.0	v	1.3	d	0.3	v	2.7	d	0.1	v	2.2	d	0.1

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise																		
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.		Naut.	Civil		24	25	26	27															
d	h	°	'	°	'	°	'	'	°	h	m	h	m	h	m	h	m	h	m												
24	00	176	39.5 S	9	36.2	93	34.0	11.3	N 25	21.2	7.1	54.5	N 70	05	33	06	48	07	59												
	01	191	39.6		35.3	108	04.3	11.4	25	28.3	7.0	54.5	68	05	36	06	40	07	37												
	02	206	39.7		34.4	122	34.7	11.2	25	35.3	6.8	54.5	66	05	37	06	36	07	29												
	03	221	39.8		33.5	137	04.9	11.3	25	42.1	6.8	54.5	64	05	39	06	33	07	22												
	04	236	39.9		32.5	151	35.2	11.2	25	48.9	6.6	54.4	62	05	40	06	31	07	16												
	05	251	40.0		31.6	166	05.4	11.1	25	55.5	6.5	54.4	60	05	41	06	29	07	11												
	06	266	40.1 S	9	30.7	180	35.5	11.1	N 26	02.0	6.4	54.4	N 58	05	41	06	26	07	06												
	07	281	40.1		29.8	195	05.6	11.0	26	08.4	6.2	54.4	56	05	42	06	24	07	02												
	08	296	40.2		28.9	209	35.6	11.0	26	14.6	6.1	54.4	54	05	42	06	23	06	58												
	09	311	40.3		27.9	224	05.6	11.0	26	20.7	6.0	54.4	52	05	42	06	21	06	55												
MON	10	326	40.4		27.0	238	35.6	10.9	26	26.7	5.9	54.4	50	05	42	06	19	06	52												
	11	341	40.5		26.1	253	05.5	10.9	26	32.6	5.7	54.4	45	05	42	06	16	06	45												
	12	356	40.6 S	9	25.2	267	35.4	10.8	N 26	38.3	5.7	54.4	N 40	05	41	06	12	06	40												
	13	11	40.7		24.2	282	05.2	10.8	26	44.0	5.5	54.3	35	05	40	06	09	06	35												
	14	26	40.8		23.3	296	35.0	10.8	26	49.5	5.3	54.3	30	05	39	06	06	06	31												
	15	41	40.9		22.4	311	04.8	10.7	26	54.8	5.3	54.3	20	05	35	06	01	06	23												
	16	56	41.0		21.5	325	34.5	10.6	27	00.1	5.1	54.3	N 10	05	30	05	55	06	16												
	17	71	41.1		20.5	340	04.1	10.7	27	05.2	5.0	54.3	0	05	25	05	49	06	10												
	18	86	41.2 S	9	19.6	354	33.8	10.6	N 27	10.2	4.8	54.3	S 10	05	17	05	42	06	03												
	19	101	41.3		18.7	9	03.4	10.5	27	15.0	4.8	54.3	20	05	07	05	34	05	56												
TUES	20	116	41.4		17.8	23	32.9	10.5	27	19.8	4.5	54.3	30	04	55	05	23	05	48												
	21	131	41.5		16.8	38	02.4	10.5	27	24.3	4.5	54.3	35	04	46	05	17	05	43												
	22	146	41.6		15.9	52	31.9	10.5	27	28.8	4.3	54.3	40	04	36	05	10	05	38												
	23	161	41.7		15.0	67	01.4	10.4	27	33.1	4.3	54.3	45	04	24	05	01	05	31												
	25	176	41.8 S	9	14.1	81	30.8	10.3	N 27	37.4	4.0	54.3	S 50	04	08	04	49	05	23												
	01	191	41.9		13.1	96	00.1	10.4	27	41.4	4.0	54.3	52	04	00	04	44	05	20												
	02	206	42.0		12.2	110	29.5	10.3	27	45.4	3.8	54.2	54	03	51	04	38	05	16												
	03	221	42.0		11.3	124	58.8	10.3	27	49.2	3.6	54.2	56	03	41	04	32	05	12												
	04	236	42.1		10.3	139	28.1	10.2	27	52.8	3.6	54.2	58	03	29	04	24	05	07												
	05	251	42.2		09.4	153	57.3	10.2	27	56.4	3.4	54.2	S 60	03	15	04	15	05	01												
WEDNES	06	266	42.3 S	9	08.5	168	26.5	10.2	N 27	59.8	3.3	54.2		Lat.	Sun-set	Twilight		Moonset													
	07	281	42.4		07.6	182	55.7	10.2	28	03.1	3.1	54.2				Civil	Naut.	24	25	26	27										
	08	296	42.5		06.6	197	24.9	10.1	28	06.2	3.0	54.2		°	h	m	h	m	h	m	h	m									
	09	311	42.6		05.7	211	54.0	10.1	28	09.2	2.9	54.2																			
	10	326	42.7		04.8	226	23.1	10.1	28	12.1	2.7	54.2																			
	11	341	42.8		03.8	240	52.2	10.0	28	14.8	2.6	54.2	N 72	16	29	17	40	18	58												
	12	356	42.9 S	9	02.9	255	21.2	10.0	N 28	17.4	2.5	54.2	N 70	16	41	17	45	18	55												
	13	11	43.0		02.0	269	50.2	10.0	28	19.9	2.3	54.2	68	16	51	17	48	18	53												
	14	26	43.1		01.0	284	19.2	10.0	28	22.2	2.2	54.2	66	16	59	17	51	18	51												
	15	41	43.2		00.0	298	48.2	10.0	28	24.4	2.1	54.2	64	17	06	17	54	18	49	05	35										
THURSDAY	16	56	43.3		8 59.2	313	17.2	9.9	28	26.5	1.9	54.2	62	17	11	17	57	18	48	04	15	06	30								
	17	71	43.4		58.3	327	46.1	9.9	28	28.4	1.8	54.2	60	17	17	17	59	18	47	03	38	05	10								
	18	86	43.5 S	8	57.3	342	15.0	9.9	N 28	30.2	1.6	54.2	N 58	17	21	18	01	18	46	03	13	04	34	05	38						
	19	101	43.6		56.4	356	43.9	9.9	28	31.8	1.5	54.2	56	17	25	18	03	18	46	02	52	04	08	05	10						
	20	116	43.8		55.5	11	12.8	9.9	28	33.3	1.4	54.2	54	17	29	18	05	18	46	02	35	03	47	04	48						
	21	131	43.9		54.5	25	41.7	9.8	28	34.7	1.2	54.2	52	17	32	18	06	18	45	02	21	03	30	04	30						
	22	146	44.0		53.6	40	10.5	9.9	28	35.9	1.1	54.2	50	17	35	18	08	18	45	02	08	03	16	04	14						
	23	161	44.1		52.7	54	39.4	9.8	28	37.0	0.9	54.2	45	17	42	18	11	18	45	01	43	02	46	03	43						
	26	00	176	44.2 S	8	51.7	69	08.2	9.8	N 28	37.9	0.9	54.2	N 40	17	47	18	14	18	46	01	22	02	23	03	19					
	01	191	44.3		50.8	83	37.0	9.8	28	38.8	0.6	54.2	35	17	52	18	17	18	47	01	05	02	04	02	59						
02	206	44.4		49.9	98	05.8	9.8	28	39.4	0.6	54.2	30	17	56	18	20	18	48	00	51	01	48	02	42							
03	221	44.5		48.9	112	34.6	9.8	28	40.0	0.4	54.2	20	18	04	18	26	18	51	00	26	01	20	02	14							
04	236	44.6		48.0	127	03.4	9.7	28	40.4	0.2	54.2	N 10	18	10	18	31	18	56	00	05	00	57	01	49							
05	251	44.7		47.1	141	32.1	9.8	28	40.6	0.1	54.2	0	18	16	18	37	19	02	24	35	00	35	01	26							
WEDNESDAY	06	266	44.8 S	8	46.1	156	00.9	9.8	N 28	40.7	0.0	54.2	S 10	18	23	18	44	19	09	24	13	00	13	01	03						
	07	281	44.9		45.2	170	29.7	9.7	28	40.7	0.1	54.2	20	18	30	18	52	19	18	23	49	24	38	00	38						
	08	296	45.0		44.3	184	58.4	9.8	28	40.6	0.3	54.2	30	18	38	19	02	19	31	23	22	24	10	00	10						
	09	311	45.1		43.3	199	27.2	9.7	28	40.3	0.5	54.2	35	18	43	19	08	19	39	23	06	23	53	24	46						
	10	326	45.2		42.4	213	55.9	9.8	28	39.8	0.5	54.2	40	18	48	19	16	19	49	22	47	23	33	24	26						
	11	341	45.3		41.5	228	24.7	9.7	28	39.3	0.8	54.2	45	18	54	19	25	20	01	22	24	23	09	24	02						
	12	356	45.4 S	8	40.5	242	53.4	9.8	N 28	38.5	0.8	54.2	S 50	19	02	19	36	20	17	21	56	22	38	23	32						
	13	11	45.5		39.6	257	22.2	9.7	28	37.7	1.0	54.2	52	19	05	19	41	20	25	21	42	22	22	23	16						
	14	26	45.6		38.6	271	50.9	9.8	28	36.7	1.1	54.2	54	19	09	19	47	20	33	21	25	22	04	22	58						
	15	41	45.7		37.7	286	19.7	9.7	28	35.6	1.3	54.2	56	19	13	19	53	20	43	21	06	21	42	22	36						
THURSDAY	16	56	45.8		36.8	300	48.4	9.8	28	34.3	1.4	54.2	58	19	18	20	00	20	55	20	42	21	13	22	08						
	17	71	46.0		35.8	315	17.2	9.8	28	32.9	1.6	54.2	S 60	19	23	20	09	21	09	20	10	20	31	21	27						
	18	86	46.1 S	8	34.9	329	46.0	9.7	N 28	31.3	1.7	54.2		Day	Eqn. of Time		Mer. Pass.		MOON												
	19	101	46.2		34.0	344	14.7	9.8	28	29.6	1.8	54.2			00 ^h	12 ^h	Mer. Pass.	Mer. Upper	Pass. Lower	Age	Phase										
	20	116	46.3		33.0	358	43.5	9.8	28	27.8	2.0	54.3																			
	21	131	46.4		32.1	13	12.3	9.8	28	25.8	2.1	54.3																			
	22	146	46.5		31.2	27	41.1	9.9	28	23.7	2.2	54.3																			
	23	161	46.6		30.2	42	10.0	9.8	28	21.5	2.4	54.3																			
	S.D. 16.2 d 0.9 S.D. 14.8 14.8 14.8																														
																			24												

G.M.T.		ARIES		VENUS -4.3		MARS +0.6		JUPITER -2.0		SATURN +0.8		STARS			
		G.H.A.		G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.	
d	h	o ' "		o ' "	° ' "	o ' "	° ' "	o ' "	° ' "	o ' "	° ' "		° ' "	° ' "	
27	00	156 39.0	139 37.9	N 11 58.8		277 46.1	S 19 12.2	332 25.7	S 0 09.1	134 57.1	N 6 37.1	Acamar	315 43.7	S 40 25.8	
	01	171 41.5	154 39.1	11 59.7		292 47.5	12.5	347 28.4	08.9	149 59.3	37.2	Achernar	335 51.6	S 57 23.8	
	02	186 43.9	169 40.2	12 00.6		307 48.8	12.7	2 31.1	08.8	165 01.5	37.3	Acrux	173 46.6	S 62 55.7	
	03	201 46.4	184 41.4	11 01.6		322 50.1	13.0	17 33.8	08.7	180 03.7	37.4	Adhara	255 38.6	S 28 55.8	
	04	216 48.9	199 42.6	02.5		337 51.4	13.2	32 36.5	08.6	195 06.0	37.5	Aldebaran	291 27.8	N 16 27.0	
05	231 51.3	214 43.7	03.4		352 52.7	13.5	47 39.2	08.5	210 08.2	37.6					
T H U R S D A Y	06	246 53.8	229 44.9	N 12 04.3		7 54.0	S 19 13.7	62 41.9	S 0 08.4	225 10.4	N 6 37.7	Alioth	166 49.2	N 56 07.3	
	07	261 56.3	244 46.1	05.3		22 55.3	14.0	77 44.6	08.3	240 12.6	37.8	Alkaid	153 24.6	N 49 27.7	
	08	276 58.7	259 47.3	06.2		37 56.7	14.2	92 47.3	08.2	255 14.9	37.9	Al Na'ir	28 25.9	S 47 06.8	
	09	292 01.2	274 48.5	07.1		52 58.0	14.5	107 50.0	08.1	270 17.1	38.0	Alnilam	276 20.2	S 1 13.2	
	10	307 03.7	289 49.6	08.0		67 59.3	14.7	122 52.7	07.9	285 19.3	38.1	Alphard	218 28.6	S 8 31.5	
S A T U R D A Y	11	322 06.1	304 50.8	08.9		83 00.6	15.0	137 55.4	07.8	300 21.5	38.2				
	12	337 08.6	319 52.0	N 12 09.8		98 01.9	S 19 15.2	152 58.1	S 0 07.7	315 23.8	N 6 38.3	Alphecca	126 39.2	N 26 48.7	
	13	352 11.0	334 53.2	10.8		113 03.2	15.5	168 00.8	07.6	330 26.0	38.5	Alpheratz	358 18.6	N 28 55.2	
	14	7 13.5	349 54.4	11.7		128 04.5	15.7	183 03.5	07.5	345 28.2	38.6	Altair	62 41.1	N 8 46.8	
	15	22 16.0	4 55.6	12.6		143 05.9	16.0	198 06.2	07.4	0 30.4	38.7	Ankaa	353 48.8	S 42 28.6	
F R I D A Y	16	37 18.4	19 56.8	13.5		158 07.2	16.2	213 08.9	07.3	15 32.7	38.8	Antares	113 07.3	S 26 22.0	
	17	52 20.9	34 58.0	14.4		173 08.5	16.5	228 11.6	07.2	30 34.9	38.9				
	18	67 23.4	49 59.2	N 12 15.3		188 09.8	S 19 16.7	243 14.4	S 0 07.0	45 37.1	N 6 39.0	Arcturus	146 26.0	N 19 20.2	
	19	82 25.8	65 00.4	16.2		203 11.1	17.0	258 17.1	06.9	60 39.3	39.1	Atria	108 39.4	S 68 58.3	
	20	97 28.3	80 01.6	17.1		218 12.5	17.2	273 19.8	06.8	75 41.6	39.2	Avior	234 31.4	S 59 24.7	
S A T U R D A Y	21	112 30.8	95 02.8	18.0		233 13.8	17.5	288 22.5	06.7	90 43.8	39.3	Bellatrix	279 07.8	N 6 19.4	
	22	127 33.2	110 04.0	19.0		248 15.1	17.7	303 25.2	06.6	105 46.0	39.4	Betelgeuse	271 37.4	N 7 24.2	
	23	142 35.7	125 05.3	19.9		263 16.4	18.0	318 27.9	06.5	120 48.2	39.5				
	28	00	157 38.2	140 06.5	N 12 20.8		278 17.7	S 19 18.2	333 30.6	S 0 06.4	135 50.4	N 6 39.6	Canopus	264 10.8	S 52 40.8
	01	172 40.6	155 07.7	21.7		293 19.1	18.5	348 33.3	06.3	150 52.7	39.7	Capella	281 23.8	N 45 58.4	
F R I D A Y	02	187 43.1	170 08.9	22.6		308 20.4	18.7	3 36.0	06.1	165 54.9	39.8	Deneb	49 54.8	N 45 09.9	
	03	202 45.5	185 10.1	23.5		323 21.7	19.0	18 38.7	06.0	180 57.1	39.9	Denebola	183 07.3	N 14 44.5	
	04	217 48.0	200 11.4	24.4		338 23.0	19.2	33 41.4	05.9	195 59.3	40.0	Diphda	349 29.6	S 18 09.5	
	05	232 50.5	215 12.6	25.3		353 24.3	19.5	48 44.1	05.8	211 01.6	40.1				
	06	247 52.9	230 13.8	N 12 26.2		8 25.7	S 19 19.7	63 46.9	S 0 05.7	226 03.8	N 6 40.2	Dubhe	194 31.5	N 61 55.0	
S A T U R D A Y	07	262 55.4	245 15.0	27.1		23 27.0	20.0	78 49.6	05.6	241 06.0	40.3	Elnath	278 54.8	N 28 35.2	
	08	277 57.9	260 16.3	28.0		38 28.3	20.2	93 52.3	05.5	256 08.2	40.4	Eltanin	91 01.9	N 51 29.0	
	09	293 00.3	275 17.5	28.9		53 29.6	20.5	108 55.0	05.3	271 10.5	40.5	Enif	34 20.3	N 9 43.8	
	10	308 02.8	290 18.8	29.8		68 31.0	20.7	123 57.7	05.2	286 12.7	40.6	Fomalhaut	16 01.0	S 29 47.3	
	11	323 05.3	305 20.0	30.7		83 32.3	21.0	139 00.4	05.1	301 14.9	40.7				
S A T U R D A Y	12	338 07.7	320 21.2	N 12 31.6		98 33.6	S 19 21.2	154 03.1	S 0 05.0	316 17.1	N 6 40.8	Gacrux	172 38.1	S 56 56.4	
	13	353 10.2	335 22.5	32.4		113 34.9	21.5	169 05.8	04.9	331 19.3	40.9	Gienah	176 26.5	S 17 22.3	
	14	8 12.7	350 23.7	33.3		128 36.2	21.7	184 08.5	04.8	346 21.6	41.0	Hadar	149 35.4	S 60 13.4	
	15	23 15.1	5 25.0	34.2		143 37.6	21.9	199 11.2	04.7	1 23.8	41.1	Hamal	328 38.8	N 23 19.1	
	16	38 17.6	20 26.2	35.1		158 38.9	22.2	214 14.0	04.6	16 26.0	41.2	Kaus Aust.	84 28.3	S 34 24.2	
S A T U R D A Y	17	53 20.0	35 27.5	36.0		173 40.2	22.4	229 16.7	04.4	31 28.2	41.3				
	18	68 22.5	50 28.7	N 12 36.9		188 41.6	S 19 22.7	244 19.4	S 0 04.3	46 30.5	N 6 41.4	Kochab	137 17.5	N 74 16.5	
	19	83 25.0	65 30.0	37.8		203 42.9	22.9	259 22.1	04.2	61 32.7	41.5	Markab	14 12.0	N 15 02.2	
	20	98 27.4	80 31.2	38.7		218 44.2	23.2	274 24.8	04.1	76 34.9	41.6	Menkar	314 50.2	N 3 58.2	
	21	113 29.9	95 32.5	39.6		233 45.5	23.4	289 27.5	04.0	91 37.1	41.7	Menkent	148 47.0	S 36 13.2	
S A T U R D A Y	22	128 32.4	110 33.8	40.4		248 46.9	23.7	304 30.2	03.9	106 39.3	41.8	Miaplacidus	221 46.4	S 69 35.4	
	23	143 34.8	125 35.0	41.3		263 48.2	23.9	319 32.9	03.7	121 41.6	41.9				
	1	00	158 37.3	140 36.3	N 12 42.2		278 49.5	S 19 24.2	334 35.6	S 0 03.6	136 43.8	N 6 42.1	Mirfak	309 28.6	N 49 45.4
	01	173 39.8	155 37.6	43.1		293 50.8	24.4	349 38.4	03.5	151 46.0	42.2	Nunki	76 39.9	S 26 20.3	
	02	188 42.2	170 38.9	44.0		308 52.2	24.7	4 41.1	03.4	166 48.2	42.3	Peacock	54 12.1	S 56 50.2	
S A T U R D A Y	03	203 44.7	185 40.1	44.9		323 53.5	24.9	19 43.8	03.3	181 50.5	42.4	Pollux	244 08.2	N 28 06.2	
	04	218 47.1	200 41.4	45.7		338 54.8	25.1	34 46.5	03.2	196 52.7	42.5	Procyon	245 34.4	N 5 18.3	
	05	233 49.6	215 42.7	46.6		353 56.2	25.4	49 49.2	03.1	211 54.9	42.6				
	06	248 52.1	230 44.0	N 12 47.5		8 57.5	S 19 25.6	64 51.9	S 0 02.9	226 57.1	N 6 42.7	Rasalhague	96 37.6	N 12 34.5	
	07	263 54.5	245 45.3	48.4		23 58.8	25.9	79 54.6	02.8	241 59.3	42.8	Regulus	208 18.7	N 12 07.1	
S A T U R D A Y	08	278 57.0	260 46.5	49.2		39 00.2	26.1	94 57.4	02.7	257 01.6	42.9	Rigel	281 44.1	S 8 14.2	
	09	293 59.5	275 47.8	50.1		54 01.5	26.4	110 00.1	02.6	272 03.8	43.0	Rigel Kent.	140 37.4	S 60 42.3	
	10	309 01.9	290 49.1	51.0		69 02.8	26.6	125 02.8	02.5	287 06.0	43.1	Sabik	102 51.0	S 15 41.5	
	11	324 04.4	305 50.4	51.8		84 04.1	26.8	140 05.5	02.4	302 08.2	43.2				
	12	339 06.9	320 51.7	N 12 52.7		99 05.5	S 19 27.1	155 08.2	S 0 02.3	317 10.4	N 6 43.3	Schedar	350 19.5	N 56 22.2	
S A T U R D A Y	13	354 09.3	335 53.0	53.6		114 06.8	27.3	170 10.9	02.1	332 12.7	43.4	Shaula	97 07.4	S 37 05.0	
	14	9 11.8	350 54.3	54.5		129 08.1	27.6	185 13.6	02.0	347 14.9	43.5	Sirius	259 03.0	S 16 40.4	
	15	24 14.2	5 55.6	55.3		144 09.5	27.8	200 16.4	01.9	2 17.1	43.6	Spica	159 06.3	N 11 00.2	
	16	39 16.7	20 56.9	56.2		159 10.8	28.1	215 19.1	01.8	17 19.3	43.7	Suhail	223 16.8	S 43 18.5	
	17	54 19.2	35 58.2	57.1		174 12.1	28.3	230 21.8	01.7	32 21.5	43.8				
S A T U R D A Y	18	69 21.6	50 59.5	N 12 57.9		189 13.5	S 19 28.5	245 24.5	S 0 01.6	47 23.8	N 6 43.9	Vega	81 01.8	N 38 44.8	
	19	84 24.1	66 00.9	58.8		204 14.8	28.8	260 27.2	01.4	62 26.0	44.0	Zuben'ubi	137 42.4	S 15 55.0	
	20	99 26.6	81 02.2	12 59.6		219 16.2	29.0	275 29.9	01.3	77 28.2	44.1				
	21	114 29.0	96 03.5	13 00.5		234 17.5	29.3	290 32.6	01.2	92 30.4	44.2		S.H.A.	Mer. Pass.	
	22	129 31.5	111 04.8	01.4		249 18.8	29.5	305 35.4	01.1	107 32.6	44.3	Venus	342 28.3	14 38	
S A T U R D A Y	23	144 34.0	126 06.1	02.2		264 20.2	29.8	320 38.1	01.0	122 34.9	44.4	Mars	120 39.5	5 26	
	Mer. Pass. 13 27.2												Jupiter	175 52.4	1 46
												Saturn	338 12.2	14 54	

G.M.T.		SUN		MOON						Lat.	Twilight		Sun-rise	Moonrise					
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.	Naut.		Civil	27		28	1	2			
d	h	°	'	°	'	°	'	°	'	°	'	h	m	h	m	h	m	h	m
27	00	176	46.7 S	8	29.3	56	38.8	9.8	N 28	19.1	2.5	54.3							12 05
	01	191	46.8		28.3	71	07.6	9.9	N 28	16.6	2.7	54.3							13 11
	02	206	46.9		27.4	85	36.5	9.9	N 28	13.9	2.8	54.3							13 47
	03	221	47.0		26.5	100	05.4	9.9	N 28	11.1	2.9	54.3					11 58		14 12
	04	236	47.1		25.5	114	34.3	9.9	N 28	08.2	3.1	54.3					12 36		14 31
	05	251	47.3		24.6	129	03.2	9.9	N 28	05.1	3.2	54.3					13 03		14 47
	06	266	47.4 S	8	23.6	143	32.1	10.0	N 28	01.9	3.4	54.3					13 24		15 00
	07	281	47.5		22.7	158	01.1	10.0	N 27	58.5	3.4	54.3					13 41		15 11
	08	296	47.6		21.8	172	30.1	10.0	N 27	55.1	3.7	54.3					13 55		15 21
	09	311	47.7		20.8	186	59.1	10.0	N 27	51.4	3.7	54.4					14 07		15 29
	10	326	47.8		19.9	201	28.1	10.0	N 27	47.7	3.9	54.4					14 18		15 37
	11	341	47.9		18.9	215	57.1	10.1	N 27	43.8	4.0	54.4					14 28		15 44
	12	356	48.0 S	8	18.0	230	26.2	10.1	N 27	39.8	4.2	54.4					14 48		15 58
	13	11	48.1		17.1	244	55.3	10.1	N 27	35.6	4.3	54.4					15 04		16 10
	14	26	48.3		16.1	259	24.4	10.2	N 27	31.3	4.4	54.4					15 18		16 20
	15	41	48.4		15.2	273	53.6	10.2	N 27	26.9	4.6	54.4					15 29		16 29
	16	56	48.5		14.2	288	22.8	10.2	N 27	22.3	4.7	54.4					15 44		16 37
	17	71	48.6		13.3	302	52.0	10.2	N 27	17.6	4.8	54.4					16 07		16 57
	18	86	48.7 S	8	12.4	317	21.2	10.3	N 27	12.8	5.0	54.4					16 23		17 10
	19	101	48.8		11.4	331	50.5	10.3	N 27	07.8	5.1	54.5					16 39		17 22
	20	116	48.9		10.5	346	19.8	10.4	N 27	02.7	5.2	54.5					16 57		17 35
	21	131	49.1		09.5	0	49.2	10.3	N 26	57.5	5.4	54.5					17 16		17 50
	22	146	49.2		08.6	15	18.5	10.4	N 26	52.1	5.5	54.5					17 28		17 58
23	161	49.3		07.6	29	47.9	10.5	N 26	46.6	5.6	54.5					17 41		18 08	
28	00	176	49.4 S	8	06.7	44	17.4	10.5	N 26	41.0	5.8	54.5					17 56		18 15
	01	191	49.5		05.8	58	46.9	10.5	N 26	35.2	5.9	54.5					18 15		18 33
	02	206	49.6		04.8	73	16.4	10.5	N 26	29.3	6.0	54.5					18 34		18 46
	03	221	49.7		03.9	87	45.9	10.6	N 26	23.3	6.1	54.6					18 53		18 54
	04	236	49.9		02.9	102	15.5	10.7	N 26	17.2	6.3	54.6					19 11		19 03
	05	251	50.0		02.0	116	45.2	10.6	N 26	10.9	6.4	54.6					19 28		19 12
	06	266	50.1 S	8	01.0	131	14.8	10.8	N 26	04.5	6.5	54.6					19 45		19 25
	07	281	50.2		00.1	145	44.6	10.7	N 25	58.0	6.7	54.6					19 59		19 39
	08	296	50.3		7 59.1	160	14.3	10.8	N 25	51.3	6.8	54.6					20 13		19 46
	09	311	50.4		58.2	174	44.1	10.8	N 25	44.5	6.9	54.6					20 27		19 53
	10	326	50.6		57.3	189	13.9	10.9	N 25	37.6	7.0	54.7					20 41		20 01
	11	341	50.7		56.3	203	43.8	10.9	N 25	30.6	7.2	54.7					20 55		20 10
	12	356	50.8 S	7	55.4	218	13.7	11.0	N 25	23.4	7.3	54.7					21 09		20 25
	13	11	50.9		54.4	232	43.7	11.0	N 25	16.1	7.4	54.7					21 23		20 41
	14	26	51.0		53.5	247	13.7	11.1	N 25	08.7	7.5	54.7					21 37		20 57
	15	41	51.1		52.5	261	43.8	11.1	N 25	01.2	7.7	54.7					21 51		21 13
	16	56	51.3		51.6	276	13.9	11.1	N 25	01.2	7.7	54.8					22 05		21 29
	17	71	51.4		50.6	290	44.0	11.2	N 25	01.2	7.9	54.8					22 19		21 45
	18	86	51.5 S	7	49.7	305	14.2	11.3	N 24	37.9	8.0	54.8					22 33		22 01
	19	101	51.6		48.7	319	44.5	11.2	N 24	29.9	8.2	54.8					22 47		22 17
	20	116	51.7		47.8	334	14.7	11.4	N 24	21.7	8.2	54.8					23 01		22 31
	21	131	51.9		46.8	348	45.1	11.3	N 24	13.5	8.4	54.8					23 15		22 45
	22	146	52.0		45.9	3	15.4	11.5	N 24	05.1	8.5	54.9					23 29		23 00
23	161	52.1		45.0	17	45.9	11.4	N 24	05.6	8.6	54.9					23 43		23 14	
1	00	176	52.2 S	7	44.0	32	16.3	11.6	N 23	48.0	8.7	54.9					23 57		23 29
	01	191	52.3		43.1	46	46.9	11.5	N 23	39.3	8.8	54.9					24 11		23 43
	02	206	52.5		42.1	61	17.4	11.6	N 23	30.5	9.0	54.9					24 25		24 01
	03	221	52.6		41.2	75	48.0	11.7	N 23	21.5	9.1	54.9					24 39		24 17
	04	236	52.7		40.2	90	18.7	11.7	N 23	12.4	9.1	55.0					24 53		24 31
	05	251	52.8		39.3	104	49.4	11.8	N 23	03.3	9.3	55.0					25 07		24 46
	06	266	52.9 S	7	38.3	119	20.2	11.8	N 22	54.0	9.4	55.0					25 21		25 01
	07	281	53.1		37.4	133	51.0	11.8	N 22	44.6	9.6	55.0					25 35		25 16
	08	296	53.2		36.4	148	21.8	12.0	N 22	35.0	9.6	55.0					25 49		25 31
	09	311	53.3		35.5	162	52.8	11.9	N 22	25.4	9.7	55.1					26 03		25 46
	10	326	53.4		34.5	177	23.7	12.0	N 22	15.7	9.9	55.1					26 17		26 01
	11	341	53.6		33.6	191	54.7	12.1	N 22	05.8	9.9	55.1					26 31		26 16
	12	356	53.7 S	7	32.6	206	25.8	12.1	N 21	55.9	10.1	55.1					26 45		26 31
	13	11	53.8		31.7	220	56.9	12.1	N 21	45.8	10.1	55.1					26 59		26 46
	14	26	53.9		30.7	235	28.0	12.2	N 21	35.7	10.3	55.2					27 13		27 01
	15	41	54.1		29.8	249	59.2	12.3	N 21	25.4	10.4	55.2					27 27		27 16
	16	56	54.2		28.8	264	30.5	12.3	N 21	15.0	10.5	55.2					27 41		27 31
	17	71	54.3		27.9	279	01.8	12.3	N 21	04.5	10.5	55.2					27 55		27 46
	18	86	54.4 S	7	26.9	293	33.1	12.4	N 20	54.0	10.7	55.2					28 09		27 59
	19	101	54.5		26.0	308	04.5	12.5	N 20	43.3	10.8	55.3					28 23		28 14
	20	116	54.7		25.0	322	36.0	12.5	N 20	32.5	10.9	55.3					28 37		28 28
	21	131	54.8		24.1	337	07.5	12.5	N 20	21.6	11.0	55.3					28 51		28 42
	22	146	54.9		23.1	351	39.0	12.6	N 20	10.6	11.1	55.3					29 05		28 56
23	161	55.1		22.2	6	10.6	12.6	N 19	59.5	11.2	55.3					29 19		29 10	
S.D. 16.2 d 0.9 S.D. 14.8 14.9 15.0																			
Day		SUN		MOON						Lat.	Twilight		Sun-rise	Moonset					
		Eqn. of Time		G.H.A.		Dec.		<i>d</i>	H.P.		Naut.	Civil		27	28	1	2		
		00h	12h	d	h	d	h							h	m	h	m		
27		m	s	m	s	h	m	h	m	h	m	h	m	h	m	d			
28		12 53	12 48	12 13	20 57	08 31	11							20 57	08 31	11			
1		12 43	12 37	12 13	21 47	09 22	12							21 47	09 22	12			
		12 31	12 26	12 12	22 34	10 11	13							22 34	10 11	13			

G.M.T.	ARIES			VENUS -4.3			MARS +0.5			JUPITER -2.0			SATURN +0.8			STARS		
	G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.		
d h	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "		o ' "	o ' "		
SUNDAY	200	159 36.4	141 07.4 N 13 03.1	279 21.5 S 19 30.0	335 40.8 S 0 00.9	137 37.1 N 6 44.5	Acamar	315 43.7	S 40 25.8									
	01	174 38.9	156 08.8 03.9	294 22.8 30.2	350 43.5 00.7	152 39.3 44.6	Achernar	335 51.7	S 57 23.7									
	02	189 41.4	171 10.1 04.8	309 24.2 30.5	5 46.2 00.6	167 41.5 44.7	Acrux	173 46.6	S 62 55.7									
	03	204 43.8	186 11.4 05.7	324 25.5 30.7	20 48.9 00.5	182 43.7 44.9	Adhara	255 38.6	S 28 55.8									
	04	219 46.3	201 12.8 06.5	339 26.9 31.0	35 51.7 00.4	197 46.0 45.0	Aldebaran	291 27.8	N 16 27.0									
	05	234 48.7	216 14.1 07.4	354 28.2 31.2	50 54.4 00.3	212 48.2 45.1												
	06	249 51.2	231 15.4 N 13 08.2	9 29.5 S 19 31.4	65 57.1 S 0 00.2	227 50.4 N 6 45.2	Alioth	166 49.1	N 56 07.4									
	07	264 53.7	246 16.8 09.1	24 30.9 31.7	80 59.8 0 00.0	242 52.6 45.3	Alkaid	153 24.6	N 49 27.7									
	08	279 56.1	261 18.1 09.9	39 32.2 31.9	96 02.5 N 0 00.1	257 54.8 45.4	Al Na'ir	28 25.9	S 47 06.8									
	09	294 58.6	276 19.5 10.8	54 33.5 32.2	111 05.3 00.2	272 57.1 45.5	Alnilam	276 20.2	S 1 13.2									
	10	310 01.1	291 20.8 11.6	69 34.9 32.4	126 08.0 00.3	287 59.3 45.6	Alphard	218 28.6	S 8 31.5									
	11	325 03.5	306 22.2 12.5	84 36.2 32.6	141 10.7 00.4	303 01.5 45.7												
	12	340 06.0	321 23.5 N 13 13.3	99 37.6 S 19 32.9	156 13.4 N 0 00.5	318 03.7 N 6 45.8	Alphecca	126 39.1	N 26 48.7									
	13	355 08.5	336 24.9 14.2	114 38.9 33.1	171 16.1 00.7	333 05.9 45.9	Alpheratz	358 18.6	N 28 55.2									
	14	10 10.9	351 26.2 15.0	129 40.3 33.4	186 18.8 00.8	348 08.1 46.0	Altair	62 41.1	N 8 46.8									
	15	25 13.4	6 27.6 15.8	144 41.6 33.6	201 21.6 00.9	3 10.4 46.1	Ankaa	353 48.8	S 42 28.5									
	16	40 15.9	21 29.0 16.7	159 42.9 33.8	216 24.3 01.0	18 12.6 46.2	Antares	113 07.3	S 26 22.0									
	17	55 18.3	36 30.3 17.5	174 44.3 34.1	231 27.0 01.1	33 14.8 46.3												
	18	70 20.8	51 31.7 N 13 18.4	189 45.6 S 19 34.3	246 29.7 N 0 01.2	48 17.0 N 6 46.4	Arcturus	146 25.9	N 19 20.3									
	19	85 23.2	66 33.1 19.2	204 47.0 34.6	261 32.4 01.4	63 19.2 46.5	Atria	108 39.4	S 68 58.3									
	20	100 25.7	81 34.4 20.0	219 48.3 34.8	276 35.2 01.5	78 21.5 46.6	Avior	234 31.4	S 59 24.7									
	21	115 28.2	96 35.8 20.9	234 49.7 35.0	291 37.9 01.6	93 23.7 46.7	Bellatrix	279 07.8	N 6 19.4									
	22	130 30.6	111 37.2 21.7	249 51.0 35.3	306 40.6 01.7	108 25.9 46.8	Beteigeuse	271 37.4	N 7 24.2									
	23	145 33.1	126 38.6 22.6	264 52.4 35.5	321 43.3 01.8	123 28.1 46.9												
MONDAY	300	160 35.6	141 40.0 N 13 23.4	279 53.7 S 19 35.7	336 46.0 N 0 01.9	138 30.3 N 6 47.0	Canopus	264 10.8	S 52 40.8									
	01	175 38.0	156 41.3 24.2	294 55.0 36.0	351 48.8 02.1	153 32.5 47.1	Capella	281 23.8	N 45 58.4									
	02	190 40.5	171 42.7 25.0	309 56.4 36.2	6 51.5 02.2	168 34.8 47.2	Deneb	49 54.8	N 45 09.9									
	03	205 43.0	186 44.1 25.9	324 57.7 36.4	21 54.2 02.3	183 37.0 47.4	Denebola	183 07.3	N 14 44.5									
	04	220 45.4	201 45.5 26.7	339 59.1 36.7	36 56.9 02.4	198 39.2 47.5	Diphda	349 29.6	S 18 09.5									
	05	235 47.9	216 46.9 27.5	355 00.4 36.9	51 59.7 02.5	213 41.4 47.6												
	06	250 50.4	231 48.3 N 13 28.4	10 01.8 S 19 37.2	67 02.4 N 0 02.7	228 43.6 N 6 47.7	Dubhe	194 31.5	N 61 55.0									
	07	265 52.8	246 49.7 29.2	25 03.1 37.4	82 05.1 02.8	243 45.8 47.8	Elnath	278 54.8	N 28 35.2									
	08	280 55.3	261 51.1 30.0	40 04.5 37.6	97 07.8 02.9	258 48.1 47.9	Eltanin	91 01.8	N 51 29.0									
	09	295 57.7	276 52.5 30.8	55 05.8 37.9	112 10.5 03.0	273 50.3 48.0	Enif	34 20.3	N 9 43.8									
	10	311 00.2	291 53.9 31.7	70 07.2 38.1	127 13.3 03.1	288 52.5 48.1	Fomalhaut	16 01.0	S 29 47.3									
	11	326 02.7	306 55.3 32.5	85 08.5 38.3	142 16.0 03.2	303 54.7 48.2												
	12	341 05.1	321 56.7 N 13 33.3	100 09.9 S 19 38.6	157 18.7 N 0 03.4	318 56.9 N 6 48.3	Gacrux	172 38.1	S 56 56.4									
	13	356 07.6	336 58.2 34.1	115 11.2 38.8	172 21.4 03.5	333 59.1 48.4	Gienah	176 26.5	S 17 22.4									
	14	11 10.1	351 59.6 34.9	130 12.6 39.0	187 24.2 03.6	349 01.4 48.5	Hadar	149 35.4	S 60 13.4									
	15	26 12.5	7 01.0 35.8	145 13.9 39.3	202 26.9 03.7	4 03.6 48.6	Hamal	328 38.8	N 23 19.1									
	16	41 15.0	22 02.4 36.6	160 15.3 39.5	217 29.6 03.8	19 05.8 48.7	Kaus Aust.	84 28.3	S 34 24.2									
	17	56 17.5	37 03.8 37.4	175 16.6 39.7	232 32.3 04.0	34 08.0 48.8												
	18	71 19.9	52 05.3 N 13 38.2	190 18.0 S 19 40.0	247 35.1 N 0 04.1	49 10.2 N 6 48.9	Kochab	137 17.4	N 74 16.5									
	19	86 22.4	67 06.7 39.0	205 19.3 40.2	262 37.8 04.2	64 12.4 49.0	Markab	14 12.0	N 15 02.2									
	20	101 24.9	82 08.1 39.8	220 20.7 40.4	277 40.5 04.3	79 14.6 49.1	Menkar	314 50.2	N 3 58.2									
	21	116 27.3	97 09.6 40.6	235 22.0 40.7	292 43.2 04.4	94 16.9 49.2	Menkent	148 46.9	S 36 13.2									
	22	131 29.8	112 11.0 41.4	250 23.4 40.9	307 45.9 04.6	109 19.1 49.3	Miaplacidus	221 46.4	S 69 35.4									
	23	146 32.2	127 12.4 42.3	265 24.8 41.1	322 48.7 04.7	124 21.3 49.5												
TUESDAY	400	161 34.7	142 13.9 N 13 43.1	280 26.1 S 19 41.4	337 51.4 N 0 04.8	139 23.5 N 6 49.6	Mirfak	309 28.6	N 49 45.4									
	01	176 37.2	157 15.3 43.9	295 27.5 41.6	352 54.1 04.9	154 25.7 49.7	Nunki	76 39.9	S 26 20.3									
	02	191 39.6	172 16.8 44.7	310 28.8 41.8	7 56.8 05.0	169 27.9 49.8	Peacock	54 12.1	S 56 50.2									
	03	206 42.1	187 18.2 45.5	325 30.2 42.1	22 59.6 05.1	184 30.2 49.9	Pollux	244 08.3	N 28 06.2									
	04	221 44.6	202 19.7 46.3	340 31.5 42.3	38 02.3 05.3	199 32.4 50.0	Procyon	245 34.4	N 5 18.3									
	05	236 47.0	217 21.1 47.1	355 32.9 42.5	53 05.0 05.4	214 34.6 50.1												
	06	251 49.5	232 22.6 N 13 47.9	10 34.2 S 19 42.8	68 07.7 N 0 05.5	229 36.8 N 6 50.2	Rasalhague	96 37.5	N 12 34.5									
	07	266 52.0	247 24.1 48.7	25 35.6 43.0	83 10.5 05.6	244 39.0 50.3	Regulus	208 18.7	N 12 07.1									
	08	281 54.4	262 25.5 49.5	40 37.0 43.2	98 13.2 05.7	259 41.2 50.4	Rigel	281 44.1	S 8 14.2									
	09	296 56.9	277 27.0 50.3	55 38.3 43.5	113 15.9 05.9	274 43.4 50.5	Rigel Kent.	140 37.3	S 60 42.4									
	10	311 59.3	292 28.5 51.1	70 39.7 43.7	128 18.7 06.0	289 45.7 50.6	Sabik	102 50.9	S 15 41.5									
	11	327 01.8	307 29.9 51.9	85 41.0 43.9	143 21.4 06.1	304 47.9 50.7												
	12	342 04.3	322 31.4 N 13 52.7	100 42.4 S 19 44.2	158 24.1 N 0 06.2	319 50.1 N 6 50.8	Schedar	350 19.5	N 56 22.2									
	13	357 06.7	337 32.9 53.5	115 43.8 44.4	173 26.8 06.3	334 52.3 50.9	Shaula	97 07.4	S 37 05.0									
	14	12 09.2	352 34.4 54.2	130 45.1 44.6	188 29.6 06.5	349 54.5 51.0	Sirius	259 03.1	S 16 40.4									
	15	27 11.7	7 35.8 55.0	145 46.5 44.8	203 32.3 06.6	4 56.7 51.1	Spica	159 06.3	N 11 00.2									
	16	42 14.1	22 37.3 55.8	160 47.8 45.1	218 35.0 06.7	19 58.9 51.2	Suhail	223 16.8	S 43 18.5									
	17	57 16.6	37 38.8 56.6	175 49.2 45.3	233 37.7 06.8	35 01.2 51.3												
	18	72 19.1	52 40.3 N 13 57.4	190 50.6 S 19 45.5	248 40.5 N 0 06.9	50 03.4 N 6 51.4	Vega	81 01.8	N 38 44.8									
	19	87 21.5	67 41.8 58.2	205 51.9 45.8	263 43.2 07.1													

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise																
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.		Naut.	Civil		2	3	4	5													
d	h								°	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>				
2	00	176	55.2 S	7	21.2	20	42.2	12.7	N	19	48.3	11.2	55.4	N	72	05	01	06	19	07	27	12	05	15	19	17	39	19	51
	01	191	55.3		20.3	35	13.9	12.7		19	37.1	11.4	55.4	N	70	05	07	06	17	07	19	13	11	15	39	17	45	19	48
	02	206	55.4		19.3	49	45.6	12.8		19	25.7	11.5	55.4	66	05	12	06	16	07	12	13	47	15	54	17	51	19	45	
	03	221	55.6		18.3	64	17.4	12.8		19	14.2	11.6	55.4	64	05	16	06	15	07	06	14	12	16	07	17	56	19	43	
	04	236	55.7		17.4	78	49.2	12.9		19	02.6	11.6	55.4	62	05	19	06	14	07	01	14	31	16	17	17	59	19	41	
	05	251	55.8		16.4	93	21.1	12.9		18	51.0	11.8	55.5	60	05	22	06	13	06	57	14	47	16	26	18	03	19	40	
	06														60	05	24	06	12	06	53	15	00	16	34	18	06	19	38
	07	266	55.9 S	7	15.5	107	53.0	13.0	N	18	39.2	11.8	55.5	N	58	05	26	06	11	06	50	15	11	16	40	18	08	19	37
	08	281	56.1		14.5	122	25.0	13.0		18	27.4	12.0	55.5	56	05	27	06	10	06	47	15	21	16	46	18	10	19	36	
	09	296	56.2		13.6	136	57.0	13.0		18	15.4	12.0	55.5	54	05	28	06	09	06	44	15	29	16	51	18	13	19	35	
SUN	10	311	56.3		12.6	151	29.0	13.1		18	03.4	12.1	55.6	52	05	29	06	08	06	42	15	37	16	56	18	14	19	34	
	11	326	56.4		11.7	166	01.1	13.1		17	51.3	12.2	55.6	50	05	30	06	08	06	40	15	44	17	00	18	16	19	33	
	12	341	56.6		10.7	180	33.2	13.2		17	39.1	12.3	55.6	45	05	32	06	05	06	35	15	58	17	09	18	20	19	31	
	13	356	56.7 S	7	09.8	195	05.4	13.2	N	17	26.8	12.4	55.6	N	40	05	32	06	04	06	31	16	10	17	16	18	23	19	30
	14	11	56.8		08.8	209	37.6	13.3		17	14.4	12.5	55.6	35	05	33	06	02	06	27	16	20	17	23	18	25	19	29	
	15	26	57.0		07.9	224	09.9	13.3		17	01.9	12.5	55.7	30	05	32	06	00	06	24	16	29	17	28	18	28	19	27	
	16	41	57.1		06.9	238	42.2	13.4		16	49.4	12.7	55.7	25	05	31	05	56	06	18	16	44	17	38	18	32	19	26	
	17	56	57.2		05.9	253	14.6	13.4		16	36.7	12.7	55.7	N	10	05	28	05	52	06	13	16	57	17	47	18	35	19	24
	18	71	57.3		05.0	267	46.9	13.5		16	24.0	12.8	55.7	0	05	24	05	48	06	09	17	10	17	54	18	38	19	22	
	19	86	57.5 S	7	04.0	282	19.4	13.4	N	16	11.2	12.9	55.8	S	10	05	18	05	42	06	04	17	22	18	02	18	42	19	21
DAY	20	101	57.6		03.1	296	51.8	13.5		15	58.3	13.0	55.8	20	05	10	05	36	05	58	17	35	18	11	18	45	19	19	
	21	116	57.7		02.1	311	24.3	13.6		15	45.3	13.0	55.8	30	04	59	05	28	05	52	17	50	18	20	18	49	19	18	
	22	131	57.9		01.2	325	56.9	13.6		15	32.3	13.1	55.8	35	04	52	05	23	05	48	17	58	18	26	18	51	19	17	
	23	146	58.0		00.2	340	29.5	13.6		15	19.2	13.2	55.8	40	04	44	05	17	05	44	18	08	18	32	18	54	19	15	
	24	161	58.1		6	59.3	355	02.1	13.6		15	06.0	13.3	55.9	45	04	33	05	09	05	39	18	19	18	39	18	57	19	14
	00	176	58.3 S	6	58.3	9	34.7	13.7	N	14	52.7	13.4	55.9	S	50	04	20	05	00	05	34	18	33	18	47	19	00	19	13
	01	191	58.4		57.3	24	07.4	13.8		14	39.3	13.4	55.9	52	04	13	04	56	05	31	18	39	18	51	19	02	19	12	
	02	206	58.5		56.4	38	40.2	13.7		14	25.9	13.5	55.9	54	04	06	04	51	05	28	18	46	18	56	19	04	19	11	
	03	221	58.7		55.4	53	12.9	13.8		14	12.4	13.6	56.0	56	03	57	04	46	05	25	18	54	19	00	19	06	19	10	
	04	236	58.8		54.5	67	45.7	13.8		13	58.8	13.6	56.0	58	03	48	04	40	05	21	19	03	19	06	19	08	19	09	
05	251	58.9		53.5	82	18.5	13.9		13	45.2	13.7	56.0	S	60	03	36	04	33	05	17	19	12	19	11	19	10			
MON	06	266	59.0 S	6	52.6	96	51.4	13.9	N	13	31.5	13.8	56.0																
	07	281	59.2		51.6	111	24.3	13.9		13	17.7	13.9	56.1	Lat.	Sun-set	Twilight		Moonset											
	08	296	59.3		50.6	125	57.2	14.0		13	03.8	13.9	56.1			Civil	Naut.	2	3	4	5								
	09	311	59.4		49.7	140	30.2	13.9		12	49.9	14.0	56.1																
	10	326	59.6		48.7	155	03.1	14.1		12	35.9	14.0	56.1																
	11	341	59.7		47.8	169	36.2	14.0		12	21.9	14.2	56.1																
	12	356	59.8 S	6	46.8	184	09.2	14.1	N	12	07.7	14.1	56.2																
	13	12	00.0		45.9	198	42.3	14.1		11	53.6	14.3	56.2	N	70	17	07	18	09	19	20	09	05	08	13	07	39	07	12
	14	27	00.1		44.9	213	15.4	14.1		11	39.3	14.3	56.2	68	17	14	18	10	19	14	08	28	07	55	07	31	07	10	
	15	42	00.2		43.9	227	48.5	14.1		11	25.0	14.4	56.2	66	17	19	18	11	19	10	08	02	07	41	07	24	07	10	
TUESDAY	16	57	00.4		43.0	242	21.6	14.2		11	10.6	14.4	56.3	64	17	24	18	12	19	07	07	41	07	29	07	18	07	09	
	17	72	00.5		42.0	256	54.8	14.2		10	56.2	14.5	56.3	62	17	28	18	13	19	04	07	25	07	19	07	13	07	08	
	18	87	00.7 S	6	41.1	271	28.0	14.2	N	10	41.7	14.5	56.3	60	17	32	18	14	19	02	07	10	07	10	07	09	07	07	
	19	102	00.8		40.1	286	01.2	14.2		10	27.2	14.6	56.3	N	58	17	35	18	14	19	00	06	58	07	02	07	05	07	07
	20	117	00.9		39.1	300	34.4	14.3		10	12.6	14.7	56.3	56	17	38	18	15	18	58	06	48	06	55	07	01	07	06	
	21	132	01.1		38.2	315	07.7	14.2		9	57.9	14.7	56.4	54	17	41	18	16	18	57	06	39	06	49	06	58	07	06	
	22	147	01.2		37.2	329	40.9	14.3		9	43.2	14.8	56.4	52	17	43	18	17	18	56	06	30	06	44	06	55	07	05	
	23	162	01.3		36.3	344	14.2	14.3		9	28.4	14.8	56.4	50	17	45	18	17	18	55	06	23	06	39	06	52	07	05	
	24	177	01.5 S	6	35.3	358	47.5	14.4	N	9	13.6	14.9	56.4	45	17	50	18	19	18	53	06	07	06	28					

G.M.T.		ARIES		VENUS -4.3		MARS +0.4		JUPITER -2.0		SATURN +0.8		STARS			
		G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d	h														
WEDNESDAY	5 00	162 33.8	142 49.3	N 14 02.1	280 58.7	S 19 46.9	338 56.8	N 0 07.7	140 16.6	N 6 52.1	Acamar	315 43.7	S 40 25.8		
	01	177 36.3	157 50.8	02.9	296 00.1	47.1	353 59.6	07.8	155 18.9	52.2	Achernar	335 51.7	S 57 23.7		
	02	192 38.8	172 52.3	03.7	311 01.5	47.4	9 02.3	07.9	170 21.1	52.3	Acrux	173 46.5	S 62 55.7		
	03	207 41.2	187 53.8	04.4	326 02.8	47.6	24 05.0	08.0	185 23.3	52.4	Adhara	255 38.6	S 28 55.8		
	04	222 43.7	202 55.3	05.2	341 04.2	47.8	39 07.7	08.1	200 25.5	52.5	Aldebaran	291 27.8	N 16 27.0		
	05	237 46.2	217 56.9	06.0	356 05.6	48.1	54 10.5	08.3	215 27.7	52.6					
	06	252 48.6	232 58.4	N 14 06.7	11 06.9	S 19 48.3	69 13.2	N 0 08.4	230 29.9	N 6 52.7	Alioth	166 49.1	N 56 07.4		
	07	267 51.1	247 59.9	07.5	26 08.3	48.5	84 15.9	08.5	245 32.1	52.8	Alkaid	153 24.6	N 49 27.7		
	08	282 53.6	263 01.4	08.3	41 09.7	48.7	99 18.7	08.6	260 34.3	52.9	Al Na'ir	28 25.8	S 47 06.8		
	09	297 56.0	278 03.0	09.1	56 11.0	49.0	114 21.4	08.7	275 36.6	53.0	Alnilam	276 20.2	S 1 13.2		
	10	312 58.5	293 04.5	09.8	71 12.4	49.2	129 24.1	08.9	290 38.8	53.1	Alphard	218 28.6	S 8 31.5		
	11	328 00.9	308 06.0	10.6	86 13.8	49.4	144 26.8	09.0	305 41.0	53.2					
	12	343 03.4	323 07.6	N 14 11.4	101 15.1	S 19 49.6	159 29.6	N 0 09.1	320 43.2	N 6 53.3	Alphecca	126 39.1	N 26 48.7		
	13	358 05.9	338 09.1	12.1	116 16.5	49.9	174 32.3	09.2	335 45.4	53.5	Alpheratz	358 18.6	N 28 55.2		
	14	13 08.3	353 10.7	12.9	131 17.9	50.1	189 35.0	09.4	350 47.6	53.6	Altair	62 41.1	N 8 46.8		
	15	28 10.8	8 12.2	13.7	146 19.3	50.3	204 37.8	09.5	5 49.8	53.7	Ankaa	353 48.8	S 42 28.5		
	16	43 13.3	23 13.7	14.4	161 20.6	50.5	219 40.5	09.6	20 52.0	53.8	Antares	113 07.3	S 26 22.0		
	17	58 15.7	38 15.3	15.2	176 22.0	50.8	234 43.2	09.7	35 54.2	53.9					
	18	73 18.2	53 16.9	N 14 15.9	191 23.4	S 19 51.0	249 46.0	N 0 09.8	50 56.5	N 6 54.0	Arcturus	146 25.9	N 19 20.2		
	19	88 20.7	68 18.4	16.7	206 24.7	51.2	264 48.7	10.0	65 58.7	54.1	Atria	108 39.3	S 68 58.3		
	20	103 23.1	83 20.0	17.4	221 26.1	51.5	279 51.4	10.1	81 00.9	54.2	Avior	234 31.4	S 59 24.7		
	21	118 25.6	98 21.5	18.2	236 27.5	51.7	294 54.2	10.2	96 03.1	54.3	Bellatrix	279 07.8	N 6 19.4		
	22	133 28.1	113 23.1	19.0	251 28.9	51.9	309 56.9	10.3	111 05.3	54.4	Betelgeuse	271 37.4	N 7 24.2		
	23	148 30.5	128 24.7	19.7	266 30.2	52.1	324 59.6	10.5	126 07.5	54.5					
THURSDAY	6 00	163 33.0	143 26.2	N 14 20.5	281 31.6	S 19 52.4	340 02.3	N 0 10.6	141 09.7	N 6 54.6	Canopus	264 10.8	S 52 40.8		
	01	178 35.4	158 27.8	21.2	296 33.0	52.6	355 05.1	10.7	156 11.9	54.7	Capella	281 23.8	N 45 58.4		
	02	193 37.9	173 29.4	22.0	311 34.4	52.8	10 07.8	10.8	171 14.1	54.8	Deneb	49 54.8	N 45 09.8		
	03	208 40.4	188 31.0	22.7	326 35.7	53.0	25 10.5	10.9	186 16.4	54.9	Denebola	183 07.3	N 14 44.5		
	04	223 42.8	203 32.5	23.4	341 37.1	53.3	40 13.3	11.1	201 18.6	55.0	Diphda	349 29.6	S 18 09.5		
	05	238 45.3	218 34.1	24.2	356 38.5	53.5	55 16.0	11.2	216 20.8	55.2					
	06	253 47.8	233 35.7	N 14 24.9	11 39.9	S 19 53.7	70 18.7	N 0 11.3	231 23.0	N 6 55.3	Dubhe	194 31.5	N 61 55.0		
	07	268 50.2	248 37.3	25.7	26 41.2	53.9	85 21.5	11.4	246 25.2	55.4	Elath	278 54.8	N 28 35.2		
	08	283 52.7	263 38.9	26.4	41 42.6	54.1	100 24.2	11.6	261 27.4	55.5	Eltanin	91 01.8	N 51 29.0		
	09	298 55.2	278 40.5	27.2	56 44.0	54.4	115 26.9	11.7	276 29.6	55.6	Enif	34 20.2	N 9 43.7		
	10	313 57.6	293 42.1	27.9	71 45.4	54.6	130 29.7	11.8	291 31.8	55.7	Fomalhaut	16 01.0	S 29 47.3		
	11	329 00.1	308 43.7	28.6	86 46.7	54.8	145 32.4	11.9	306 34.0	55.8					
	12	344 02.5	323 45.3	N 14 29.4	101 48.1	S 19 55.0	160 35.1	N 0 12.0	321 36.2	N 6 55.9	Gacrux	172 38.0	S 56 56.4		
	13	359 05.0	338 46.9	30.1	116 49.5	55.3	175 37.9	12.2	336 38.5	56.0	Gienah	176 26.5	S 17 22.4		
	14	14 07.5	353 48.5	30.8	131 50.9	55.5	190 40.6	12.3	351 40.7	56.1	Hadar	149 35.3	S 60 13.5		
	15	29 09.9	8 50.1	31.6	146 52.3	55.7	205 43.3	12.4	6 42.9	56.2	Hamal	328 38.8	N 23 19.1		
	16	44 12.4	23 51.7	32.3	161 53.6	55.9	220 46.1	12.5	21 45.1	56.3	Kaus Aust.	84 28.2	S 34 24.1		
	17	59 14.9	38 53.3	33.0	176 55.0	56.1	235 48.8	12.7	36 47.3	56.4					
	18	74 17.3	53 55.0	N 14 33.8	191 56.4	S 19 56.4	250 51.5	N 0 12.8	51 49.5	N 6 56.5	Kochab	137 17.3	N 74 16.5		
	19	89 19.8	68 56.6	34.5	206 57.8	56.6	265 54.3	12.9	66 51.7	56.6	Markab	14 12.0	N 15 02.2		
	20	104 22.3	83 58.2	35.2	221 59.2	56.8	280 57.0	13.0	81 53.9	56.8	Menkar	314 50.2	N 3 58.2		
	21	119 24.7	98 59.8	35.9	237 00.6	57.0	295 59.7	13.1	96 56.1	56.9	Menkent	148 46.9	S 36 13.2		
	22	134 27.2	114 01.5	36.7	252 01.9	57.3	311 02.5	13.3	111 58.3	57.0	Miaplacidus	221 46.5	S 69 35.4		
	23	149 29.6	129 03.1	37.4	267 03.3	57.5	326 05.2	13.4	127 00.5	57.1					
FRIDAY	7 00	164 32.1	144 04.7	N 14 38.1	282 04.7	S 19 57.7	341 07.9	N 0 13.5	142 02.8	N 6 57.2	Mirfak	309 28.6	N 49 45.4		
	01	179 34.6	159 06.4	38.8	297 06.1	57.9	356 10.7	13.6	157 05.0	57.3	Nunki	76 39.8	S 26 20.3		
	02	194 37.0	174 08.0	39.5	312 07.5	58.1	11 13.4	13.8	172 07.2	57.4	Peacock	54 12.0	S 56 50.1		
	03	209 39.5	189 09.7	40.3	327 08.9	58.4	26 16.2	13.9	187 09.4	57.5	Pollux	244 08.3	N 28 06.2		
	04	224 42.0	204 11.3	41.0	342 10.2	58.6	41 18.9	14.0	202 11.6	57.6	Procyon	245 34.4	N 5 18.3		
	05	239 44.4	219 13.0	41.7	357 11.6	58.8	56 21.6	14.1	217 13.8	57.7					
	06	254 46.9	234 14.6	N 14 42.4	12 13.0	S 19 59.0	71 24.4	N 0 14.2	232 16.0	N 6 57.8	Rasalhague	96 37.5	N 12 34.5		
	07	269 49.4	249 16.3	43.1	27 14.4	59.2	86 27.1	14.4	247 18.2	57.9	Regulus	208 18.7	N 12 07.1		
	08	284 51.8	264 18.0	43.8	42 15.8	59.5	101 29.8	14.5	262 20.4	58.0	Rigel	281 44.1	S 8 14.2		
	09	299 54.3	279 19.6	44.5	57 17.2	59.7	116 32.6	14.6	277 22.6	58.1	Rigel Kent.	140 37.3	S 60 42.4		
	10	314 56.8	294 21.3	45.2	72 18.6	19 59.9	131 35.3	14.7	292 24.8	58.3	Sabik	102 50.9	S 15 41.5		
	11	329 59.2	309 23.0	46.0	87 20.0	20 00.1	146 38.0	14.9	307 27.0	58.4					
	12	345 01.7	324 24.6	N 14 46.7	102 21.3	S 20 00.3	161 40.8	N 0 15.0	322 29.3	N 6 58.5	Schedar	350 19.5	N 56 22.2		
	13	0 04.1	339 26.3	47.4	117 22.7	00.5	176 43.5	15.1	337 31.5	58.6	Shaula	97 07.4	S 37 05.0		
	14	15 06.6	354 28.0	48.1	132 24.1	00.8	191 46.2	15.2	352 33.7	58.7	Sirius	259 03.1	S 16 40.4		
	15	30 09.1	9 29.7	48.8	147 25.5	01.0	206 49.0	15.4	7 35.9	58.8	Spica	159 06.3	S 11 00.2		
	16	45 11.5	24 31.3	49.5	162 26.9	01.2	221 51.7	15.5	22 38.1	58.9	Suhail	223 16.8	S 43 18.5		
	17	60 14.0	39 33.0	50.2	177 28.3	01.4	236 54.5	15.6	37 40.3	59.0					
	18	75 16.5	54 34.7	N 14 50.9	192 29.7	S 20 01.6	251 57.2	N 0 15.7	52 42.5	N 6 59.1	Vega	81 01.8	N 38 44.8		
	19	90 18.9	69 36.4	51.6	207 31.1	01.9	266 59.9	15.9	67 44.7	59.2	Zuben'ubi	137 42.3	S 15 55.0		
	20	105 21.4	84 38.1	52.3	222 32.5	02.1	282 02.7	16.0	82 46.9	59.3					
	21	120 23.9	99 39.8	53.0	237 33.9	02.3	297 05.4	16.1	97 49.1	59.4					
	22	135 26.3	114 41.5	53.7	252 35.3	02.5	312 08.1	16.2	112 51.3	59.5	Venus	339 53.2	14 25		
	23	150 28.8	129 43.2	54.3	267 36.7	02.7	327 10.9	16.3	127 53.5	59.6	Mars	117 58.6	5 13		
Mer. Pass. 13 03.7		v 1.6 d 0.7		v 1.4 d 0.2		v 2.7 d 0.1		v 2.2 d 0.1		v 2.2 d 0.1		Jupiter		1 20	
												Saturn		14 33	

G.M.T.		ARIES		VENUS -4.3		MARS +0.4		JUPITER -2.0		SATURN +0.8		STARS													
G.H.A.		G.H.A.		Dec.		G.H.A.		Dec.		G.H.A.		Dec.		Name	S.H.A.	Dec.									
d	h	° ' "		° ' "		° ' "		° ' "		° ' "		° ' "			° ' "	° ' "									
SATURDAY	8 00	165	31.3	144	44.9	N 14	55.0	282	38.0	S 20	02.9	342	13.6	N 0	16.5	142	55.7	N 6	59.7	Acamar	315	43.7	S 40	25.8	
	01	180	33.7	159	46.6			297	39.4		03.2	357	16.4		16.6	157	57.9		6	59.9	Achernar	335	51.7	S 57	23.7
	02	195	36.2	174	48.3		56.4	312	40.8		03.4	12	19.1		16.7	173	00.2		7	00.0	Acrux	173	46.5	S 62	55.7
	03	210	38.6	189	50.1		57.1	327	42.2		03.6	27	21.8		16.8	188	02.4		00.1		Adhara	255	38.6	S 28	55.8
	04	225	41.1	204	51.8		57.8	342	43.6		03.8	42	24.6		17.0	203	04.6		00.2		Aldebaran	291	27.8	N 16	27.0
	05	240	43.6	219	53.5		58.5	357	45.0		04.0	57	27.3		17.1	218	06.8		00.3						
	06	255	46.0	234	55.2	N 14	59.2	12	46.4	S 20	04.2	72	30.1	N 0	17.2	233	09.0	N 7	00.4		Alioth	166	49.1	N 56	07.4
	07	270	48.5	249	57.0	14	59.8	27	47.8		04.5	87	32.8		17.3	248	11.2		00.5		Alkaid	153	24.5	N 49	27.7
	08	285	51.0	264	58.7	15	00.5	42	49.2		04.7	102	35.5		17.5	263	13.4		00.6		Al Na'ir	28	25.8	S 47	06.1
	09	300	53.4	280	00.4		01.2	57	50.6		04.9	117	38.3		17.6	278	15.6		00.7		Alnilam	276	20.2	S 1	13.2
	10	315	55.9	295	02.2		01.9	72	52.0		05.1	132	41.0		17.7	293	17.8		00.8		Alphard	218	28.6	S 8	31.5
	11	330	58.4	310	03.9		02.5	87	53.4		05.3	147	43.8		17.8	308	20.0		00.9						
	12	346	00.8	325	05.6	N 15	03.2	102	54.8	S 20	05.5	162	46.5	N 0	18.0	323	22.2	N 7	01.0		Alphecca	126	39.1	N 26	48.7
	13	1 03.3	340	07.4		03.9	117	56.2		05.7	177	49.2		18.1	338	24.4		01.1			Alpheratz	358	18.6	N 28	55.1
	14	16	05.8	355	09.1		04.6	132	57.6		06.0	192	52.0		18.2	353	26.6		01.3		Altair	62	41.0	N 8	46.8
	15	31	08.2	10	10.9		05.2	147	59.0		06.2	207	54.7		18.3	8	28.8		01.4		Ankaa	353	48.8	S 42	28.5
	16	46	10.7	25	12.6		05.9	163	00.4		06.4	222	57.5		18.5	23	31.0		01.5		Antares	113	07.3	S 26	22.0
	17	61	13.1	40	14.4		06.6	178	01.8		06.6	238	00.2		18.6	38	33.2		01.6						
	18	76	15.6	55	16.2	N 15	07.2	193	03.2	S 20	06.8	253	02.9	N 0	18.7	53	35.5	N 7	01.7		Arcturus	146	25.9	N 19	20.3
	19	91	18.1	70	17.9		07.9	208	04.6		07.0	268	05.7		18.8	68	37.7		01.8		Atria	108	39.2	S 68	58.3
	20	106	20.5	85	19.7		08.6	223	06.0		07.2	283	08.4		19.0	83	39.9		01.9		Avior	234	31.5	S 59	24.7
	21	121	23.0	100	21.5		09.2	238	07.4		07.5	298	11.2		19.1	98	42.1		02.0		Bellatrix	279	07.8	N 6	19.4
	22	136	25.5	115	23.2		09.9	253	08.8		07.7	313	13.9		19.2	113	44.3		02.1		Betelgeuse	271	37.4	N 7	24.2
23	151	27.9	130	25.0		10.5	268	10.2		07.9	328	16.6		19.3	128	46.5		02.2							
SUNDAY	9 00	166	30.4	145	26.8	N 15	11.2	283	11.7	S 20	08.1	343	19.4	N 0	19.5	143	48.7	N 7	02.3		Canopus	264	10.8	S 52	40.8
	01	181	32.9	160	28.6		11.8	298	13.1		08.3	358	22.1		19.6	158	50.9		02.4		Capella	281	23.8	N 45	58.4
	02	196	35.3	175	30.4		12.5	313	14.5		08.5	13	24.9		19.7	173	53.1		02.6		Deneb	49	54.8	N 45	09.8
	03	211	37.8	190	32.2		13.2	328	15.9		08.7	28	27.6		19.8	188	55.3		02.7		Denebola	183	07.3	N 14	44.5
	04	226	40.3	205	33.9		13.8	343	17.3		09.0	43	30.3		20.0	203	57.5		02.8		Diphda	349	29.6	S 18	09.5
	05	241	42.7	220	35.7		14.5	358	18.7		09.2	58	33.1		20.1	218	59.7		02.9						
	06	256	45.2	235	37.5	N 15	15.1	13	20.1	S 20	09.4	73	35.8	N 0	20.2	234	01.9	N 7	03.0		Dubhe	194	31.5	N 61	55.0
	07	271	47.6	250	39.3		15.8	28	21.5		09.6	88	38.6		20.3	249	04.1		03.1		Elnath	278	54.8	N 28	35.2
	08	286	50.1	265	41.1		16.4	43	22.9		09.8	103	41.1		20.5	264	06.3		03.2		Eltanin	91	01.8	N 51	29.0
	09	301	52.6	280	42.9		17.0	58	24.3		10.0	118	44.1		20.6	279	08.5		03.3		Enif	34	20.2	N 9	43.7
	10	316	55.0	295	44.8		17.7	73	25.7		10.2	133	46.8		20.7	294	10.7		03.4		Fomalhaut	16	01.0	S 29	47.3
	11	331	57.5	310	46.6		18.3	88	27.1		10.4	148	49.5		20.8	309	12.9		03.5						
	12	347	00.0	325	48.4	N 15	19.0	103	28.5	S 20	10.6	163	52.3	N 0	21.0	324	15.1	N 7	03.6		Gacrux	172	38.0	S 56	56.4
	13	2 02.4	340	50.2		19.6	118	30.0		10.9	178	55.0		21.1	339	17.3		03.7			Gienah	176	26.5	S 17	22.4
	14	17	04.9	355	52.0		20.2	133	31.4		11.1	193	57.8		21.2	354	19.5		03.9		Hadar	149	35.3	S 60	13.5
	15	32	07.4	10	53.9		20.9	148	32.8		11.3	209	00.5		21.3	9	21.7		04.0		Hamal	328	38.8	N 23	19.1
	16	47	09.8	25	55.7		21.5	163	34.2		11.5	224	03.3		21.5	24	24.0		04.1		Kaus Aust.	84	28.2	S 34	24.1
	17	62	12.3	40	57.5		22.2	178	35.6		11.7	239	06.0		21.6	39	26.2		04.2						
	18	77	14.7	55	59.3	N 15	22.8	193	37.0	S 20	11.9	254	08.7	N 0	21.7	54	28.4	N 7	04.3		Kochab	137	17.3	N 74	16.5
	19	92	17.2	71	01.2		23.4	208	38.4		12.1	269	11.5		21.8	69	30.6		04.4		Markab	14	12.0	N 15	02.2
	20	107	19.7	86	03.0		24.0	223	39.8		12.3	284	14.2		22.0	84	32.8		04.5		Menkar	314	50.2	N 3	58.2
	21	122	22.1	101	04.9		24.7	238	41.3		12.5	299	17.0		22.1	99	35.0		04.6		Menkent	148	46.9	S 36	13.2
	22	137	24.6	116	06.7		25.3	253	42.7		12.7	314	19.7		22.2	114	37.2		04.7		Miaplacidus	221	46.5	S 69	35.5
23	152	27.1	131	08.6		25.9	268	44.1		13.0	329	22.5		22.4	129	39.4		04.8							
MONDAY	10 00	167	29.5	146	10.4	N 15	26.6	283	45.5	S 20	13.2	344	25.2	N 0	22.5	144	41.6	N 7	04.9		Mirfak	309	28.7	N 49	45.5
	01	182	32.0	161	12.3		27.2	298	46.9		13.4	359	27.9		22.6	159	43.8		05.0		Nunki	76	39.8	S 26	20.3
	02	197	34.5	176	14.1		27.8	313	48.3		13.6	14	30.7		22.7	174	46.0		05.2		Peacock	54	12.0	S 56	50.1
	03	212	36.9	191	16.0		28.4	328	49.8		13.8	29	33.4		22.9	189	48.2		05.3		Pollux	244	08.3	N 28	06.2
	04	227	39.4	206	17.9		29.0	343	51.2		14.0	44	36.2		23.0	204	50.4		05.4		Procyon	245	34.4	N 5	18.3
	05	242	41.9	221	19.7		29.6	358	52.6		14.2	59	38.9		23.1	219	52.6		05.5						
	06	257	44.3	236	21.6	N 15	30.3	13	54.0	S 20	14.4	74	41.7	N 0	23.2	234	54.8	N 7	05.6		Rasalhague	96	37.5	N 12	34.5
	07	272	46.8	251	23.5		30.9	28	55.4		14.6	89	44.4		23.4	249	57.0		05.7		Regulus	208	18.7	N 12	07.1
	08	287	49.2	266	25.4		31.5	43	56.8		14.8	104	47.2		23.5	264	59.2		05.8		Rigel	281	44.1	S 8	14.2
	09	302	51.7	281	27.3		32.1	58	58.3		15.0	119	49.9		23.6	280	01.4		05.9		Rigel Kent.	140	37.3	S 60	42.4
	10	317	54.2	296	29.1		32.7	73	59.7		15.2	134	52.6		23.7	295	03.6		06.0		Sabik	102	50.9	S 15	41.5
	11	332	56.6	311	31.0		33.3	89	01.1		15.5	149	55.4		23.9	310	05.8		06.1						
	12	347	59.1	326	32.9	N 15	33.9	104	02.5	S 20	15.7	164	58.1	N 0	24.0	325	08.0	N 7	06.2		Schedar	350	19.6	N 56	22.2
	13	3 01.6	341	34.8		34.5	119	04.0		15.9	180	00.9		24.1	340	10.2		06.3			Shaula	97	07.4	S 37	05.0
	14	18	04.0	356	36.7		35.1	134	05.4		16.1	195	03.6		24.2	355	12.4		06.5		Sirius	259	03.1	S 16	40.4
	15	33	06.5	11	38.6		3																		

G.M.T.		SUN				MOON				Lat.	Twilight		Sun-rise	Moonrise								
		G.H.A.	Dec.			G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.	Civil		8	9	10	11				
d	h	°	'	°	'	°	'	°	'	°	'	h	m	h	m	h	m	h	m	h	m	
8	00	177	15.4	S	5	02.4	314	45.7	10.8	S	15	37.8	14.2	58.4	N 72	04 29	05 49	06 56	01 13			
	01	192	15.5			01.5	329	15.5	10.8		15	52.0	14.1	58.4	N 70	04 39	05 51	06 51	00 28			
	02	207	15.7			5 00.5	343	45.3	10.6		16	06.1	14.1	58.4	68	04 47	05 52	06 47	27 19	03 19		
	03	222	15.8			4 59.5	358	14.9	10.6		16	20.2	13.9	58.4	66	04 53	05 53	06 44	26 03	02 03		
	04	237	16.0			58.5	12	44.5	10.5		16	34.1	13.9	58.4	64	04 58	05 53	06 41	25 27	01 27	04 31	
	05	252	16.1			57.6	27	14.0	10.3		16	48.0	13.8	58.4	62	05 02	05 54	06 38	25 01	01 01	03 12	
	06														60	05 06	05 54	06 36	24 41	00 41	02 36	04 28
	07	267	16.3	S	4	56.6	41	43.3	10.3	S	17	01.8	13.8	58.5	N 58	05 09	05 55	06 34	24 25	00 25	02 10	03 49
	08	282	16.4			55.6	56	12.6	10.2		17	15.6	13.6	58.5	56	05 12	05 55	06 32	24 11	00 11	01 49	03 22
	09	297	16.6			54.6	70	41.8	10.1		17	29.2	13.5	58.5	54	05 14	05 55	06 30	23 59	25 33	01 33	03 00
S A T U R D A Y	10	312	16.7			53.7	85	10.9	10.0		17	42.7	13.5	58.5	52	05 16	05 55	06 29	23 49	25 18	01 18	02 42
	11	327	16.9			52.7	99	39.9	9.9		17	56.2	13.4	58.5	50	05 18	05 55	06 27	23 39	25 06	01 06	02 27
	12	342	17.1			51.7	114	08.8	9.8		18	09.6	13.2	58.5	45	05 21	05 55	06 24	23 20	24 40	00 40	01 57
	13	357	17.2	S	4	50.7	128	37.6	9.6	S	18	22.8	13.2	58.5	N 40	05 23	05 55	06 22	23 04	24 19	00 19	01 33
	14	12	17.4			49.8	143	06.2	9.6		18	36.0	13.1	58.6	35	05 25	05 54	06 19	22 51	24 03	00 03	01 14
	15	27	17.5			48.8	157	34.8	9.5		18	49.1	13.0	58.6	30	05 26	05 53	06 17	22 39	23 48	24 57	00 57
	16	42	17.7			47.8	172	03.3	9.4		19	02.1	12.9	58.6	20	05 26	05 52	06 14	22 19	23 23	24 29	00 29
	17	57	17.8			46.8	186	31.7	9.3		19	15.0	12.8	58.6	N 10	05 25	05 49	06 10	22 03	23 02	24 05	00 05
	18	72	18.0			45.9	201	00.0	9.2		19	27.8	12.7	58.6	0	05 23	05 47	06 07	21 47	22 43	23 43	24 46
	19	87	18.1	S	4	44.9	215	28.2	9.1	S	19	40.5	12.6	58.6	S 10	05 18	05 43	06 04	21 31	22 23	23 21	24 23
9	20	102	18.3			43.9	229	56.3	8.9		19	53.1	12.4	58.6	20	05 12	05 38	06 00	21 15	22 02	22 57	23 58
	21	117	18.4			42.9	244	24.2	8.9		20	05.5	12.4	58.6	30	05 04	05 32	05 56	20 56	21 39	22 29	23 29
	22	132	18.6			42.0	258	52.1	8.8		20	17.9	12.3	58.7	35	04 58	05 28	05 54	20 45	21 25	22 13	23 12
	23	147	18.8			41.0	273	19.9	8.6		20	30.2	12.1	58.7	40	04 51	05 23	05 51	20 32	21 09	21 54	22 52
	00	162	18.9			40.0	287	47.5	8.6		20	42.3	12.1	58.7	45	04 43	05 18	05 48	20 18	20 50	21 32	22 27
	01	177	19.1	S	4	39.0	302	15.1	8.4	S	20	54.4	11.9	58.7	S 50	04 31	05 11	05 44	20 00	20 26	21 03	21 56
	02	192	19.2			38.1	316	42.5	8.4		21	06.3	11.8	58.7	52	04 26	05 07	05 42	19 52	20 15	20 49	21 41
	03	207	19.4			37.1	331	09.9	8.2		21	18.1	11.7	58.7	54	04 20	05 04	05 40	19 42	20 02	20 33	21 22
	04	222	19.5			36.1	345	37.1	8.1		21	29.8	11.6	58.7	56	04 13	04 59	05 37	19 32	19 47	20 14	21 00
	05	237	19.7			35.1	0	04.2	8.1		21	41.4	11.4	58.7	58	04 05	04 55	05 35	19 20	19 30	19 50	20 32
06	252	19.9			34.2	14	31.3	7.9		21	52.8	11.4	58.8	S 60	03 56	04 49	05 32	19 07	19 09	19 19	19 51	
S U N D A Y	07	267	20.0	S	4	33.2	28	58.2	7.8	S	22	04.2	11.2	58.8								
	08	282	20.2			32.2	43	25.0	7.7		22	15.4	11.0	58.8								
	09	297	20.3			31.2	57	51.7	7.6		22	26.4	11.0	58.8								
	10	312	20.5			30.2	72	18.3	7.5		22	37.4	10.8	58.8								
	11	327	20.6			29.3	86	44.8	7.4		22	48.2	10.7	58.8								
	12	342	20.8			28.3	101	11.2	7.2		22	58.9	10.6	58.8								
	13	357	21.0	S	4	27.3	115	37.4	7.2	S	23	09.5	10.4	58.8	N 72	17 27	18 35	19 55	04 35			
	14	12	21.1			26.3	130	03.6	7.1		23	19.9	10.3	58.8	N 70	17 32	18 33	19 45	05 23			
	15	27	21.3			25.4	144	29.7	6.9		23	30.2	10.1	58.9	68	17 36	18 31	19 37	05 54	04 23		
	16	42	21.4			24.4	158	55.6	6.9		23	40.3	10.0	58.9	66	17 39	18 30	19 31	06 17	05 39		
17	57	21.6			23.4	173	21.5	6.7		23	50.3	9.9	58.9	64	17 42	18 30	19 25	06 35	06 16	05 11		
M O N D A Y	18	72	21.8			22.4	187	47.2	6.7		24	00.2	9.7	58.9	62	17 45	18 29	19 21	06 51	06 43	06 31	
	19	87	21.9	S	4	21.4	202	12.9	6.5	S	24	09.9	9.6	58.9	60	17 47	18 28	19 17	07 04	07 04	07 08	07 23
	20	102	22.1			20.5	216	38.4	6.5		24	19.5	9.4	58.9	N 58	17 49	18 28	19 14	07 15	07 21	07 34	08 02
	21	117	22.2			19.5	231	03.9	6.3		24	28.9	9.3	58.9	56	17 51	18 28	19 11	07 24	07 36	07 55	08 30
	22	132	22.4			18.5	245	29.2	6.2		24	38.2	9.2	58.9	54	17 52	18 27	19 08	07 33	07 49	08 12	08 51
	23	147	22.6			17.5	259	54.4	6.1		24	47.4	8.9	58.9	52	17 54	18 27	19 06	07 41	08 00	08 27	09 09
	00	162	22.7			16.5	274	19.5	6.1		24	56.3	8.9	59.0	50	17 55	18 27	19 05	07 48	08 10	08 40	09 25
	01	177	22.9	S	4	15.6	288	44.6	5.9	S	25	05.2	8.7	59.0	45	17 58	18 27	19 01	08 03	08 31	09 07	09 55
	02	192	23.0			14.6	303	09.5	5.8		25	13.9	8.5	59.0	N 40	18 00	18 27	18 59	08 15	08 48	09 28	10 20
	03	207	23.2			13.6	317	34.3	5.8		25	22.4	8.3	59.0	35	18 02	18 28	18 57	08 26	09 02	09 46	10 39
04	222	23.4			12.6	331	59.1	5.6		25	30.7	8.2	59.0	30	18 05	18 28	18 56	08 35	09 15	10 01	10 56	
05	237	23.5			11.6	346	23.7	5.5		25	38.9	8.1	59.0	20	18 08	18 30	18 55	08 52	09 36	10 27	11 25	
T U E S D A Y	06	252	23.7			10.7	0	48.2	5.5		25	47.0	7.9	59.0	N 10	18 11	18 32	18 56	09 06	09 55	10 50	11 50
	07	267	23.9	S	4	09.7	15	12.7	5.3	S	25	54.9	7.7	59.0	0	18 14	18 35	18 59	09 19	10 13	11 11	12 13
	08	282	24.0			08.7	29	37.0	5.3		26	02.6	7.5	59.0	S 10	18 17	18 38	19 03	09 33	10 31	11 32	12 36
	09	297	24.2			07.7	44	01.3	5.1		26	10.1	7.4	59.0	20	18 20	18 43	19 08	09 47	10 50	11 55	13 00
	10	312	24.3			06.8	58	25.4	5.1		26	17.5	7.2	59.0	30	18 24	18 49	19 17	10 04	11 12	12 21	13 29
	11	327	24.5			05.8	72	49.5	5.0		26	24.7	7.1	59.1	35	18 27	18 52	19 22	10 14	11 25	12 37	13 46</

G.M.T.		ARIES		VENUS -4.3		MARS +0.3		JUPITER -2.0		SATURN +0.8		STARS				
G.H.A.		G.H.A.		Dec.		G.H.A.		Dec.		G.H.A.		Dec.		Name	S.M.A.	Dec.
d	h															
11	00	168 28.7	146 55.9	N15 41.1	284 19.6	S20 18.1	345 31.1	N 0 25.5	145 34.4	N 7 07.5	Acamar	315 43.7	S 40 48.8			
	01	183 31.1	161 57.8	41.7	299 21.1	18.3	0 33.8	25.6	160 36.6	07.7	Achernar	338 51.7	N 41 23.1			
	02	198 33.6	176 59.7	42.2	314 22.5	18.5	15 36.6	25.8	175 38.8	07.8	Acrux	173 46.5	N 40 55.7			
	03	213 36.1	192 01.7	42.8	329 23.9	18.6	30 39.3	25.9	190 41.0	07.9	Adhara	225 38.7	N 40 35.6			
	04	228 38.5	207 03.6	43.4	344 25.4	19.0	45 42.1	26.0	205 43.2	08.0	Aldebaran	291 27.8	N 40 27.0			
TUESDAY	05	243 41.0	222 05.6	44.0	359 26.8	19.2	60 44.8	26.1	220 45.4	08.1						
	06	258 43.4	237 07.5	N15 44.6	14 28.2	S20 19.4	75 47.6	N 0 26.3	235 47.6	N 7 08.2	Alloch	166 48.1	N 40 07.4			
	07	273 45.9	252 09.5	45.1	29 29.6	19.6	90 50.3	26.4	250 49.8	08.3	Alkaid	153 24.6	N 40 17.7			
	08	288 48.4	267 11.4	45.7	44 31.1	19.8	105 53.1	26.5	265 52.0	08.4	Al Na'ir	28 25.6	N 40 07.7			
	09	303 50.8	282 13.4	46.3	59 32.5	20.0	120 55.8	26.6	280 54.2	08.5	Alnilam	236 20.2	N 40 13.0			
	10	318 53.3	297 15.4	46.9	74 33.9	20.2	135 58.6	26.8	295 56.4	08.6	Alphard	218 28.6	N 40 03.6			
	11	333 55.8	312 17.3	47.4	89 35.4	20.4	151 01.3	26.9	310 58.6	08.7						
	12	348 58.2	327 19.3	N15 48.0	104 36.8	S20 20.6	166 04.0	N 0 27.0	326 00.8	N 7 08.9	Alphecca	126 49.1	N 40 48.7			
	13	4 00.7	342 21.3	48.6	119 38.2	20.8	181 36.8	27.2	341 03.0	09.0	Alpheratz	328 18.6	N 40 55.4			
	14	19 03.2	357 23.3	49.1	134 39.7	21.0	196 09.5	27.3	356 05.2	09.1	Altair	63 41.0	N 40 46.8			
	15	34 05.6	12 25.2	49.7	149 41.1	21.2	211 12.3	27.4	11 07.4	09.2	Ankaa	353 46.6	N 40 28.6			
	16	49 08.1	27 27.2	50.3	164 42.5	21.4	226 15.0	27.5	26 09.6	09.3	Antares	113 07.0	N 40 03.0			
	17	64 10.6	42 29.2	50.8	179 44.0	21.6	241 17.8	27.7	41 11.8	09.4						
	18	79 13.0	57 31.2	N15 51.4	194 45.4	S20 21.8	256 20.5	N 0 27.8	56 14.0	N 7 09.5	Arcturus	146 24.0	N 40 20.3			
	19	94 15.5	72 33.2	52.0	209 46.9	22.0	271 23.3	27.9	71 16.2	09.6	Acrux	108 39.7	N 40 08.5			
	20	109 17.9	87 35.2	52.5	224 48.3	22.2	286 26.0	28.0	86 18.4	09.7	Avior	234 31.5	N 40 24.7			
	21	124 20.4	102 37.2	53.1	239 49.7	22.4	301 28.8	28.2	101 20.6	09.8	Benetrix	279 27.8	N 40 19.4			
	22	139 22.9	117 39.2	53.6	254 51.2	22.6	316 31.5	28.3	116 22.8	09.9	Betegeuse	271 37.4	N 40 24.2			
	23	154 25.3	132 41.2	54.2	269 52.6	22.8	331 34.3	28.4	131 25.0	10.1						
	12	00	169 27.8	147 43.2	N15 54.7	284 54.0	S20 23.0	346 37.0	N 0 28.6	146 27.2	N 7 10.2	Canopus	264 10.9	S 50 40.8		
01		184 30.3	162 45.2	55.3	299 55.5	23.2	1 39.8	28.7	161 29.4	10.3	Capella	281 24.9	N 40 58.4			
02		199 32.7	177 47.2	55.8	314 56.9	23.4	16 42.5	28.8	176 31.6	10.4	Deneb	46 44.7	N 40 08.6			
03		214 35.2	192 49.3	56.4	329 58.4	23.6	31 45.3	28.9	191 33.8	10.5	Denebola	163 23.3	N 40 44.5			
04		229 37.7	207 51.3	56.9	344 59.8	23.8	46 48.0	29.1	206 36.0	10.6	Diphda	349 29.6	S 50 09.4			
	05	244 40.1	222 53.3	57.5	0 01.3	24.0	61 50.8	29.2	221 38.2	10.7						
	06	259 42.6	237 55.3	N15 58.0	15 02.7	S20 24.2	76 53.5	N 0 29.3	236 40.4	N 7 10.8	Dubhe	194 31.4	N 61 55.0			
	07	274 45.1	252 57.4	58.5	30 04.1	24.4	91 56.3	29.4	251 42.6	10.9	Elnath	278 34.9	N 61 55.2			
	08	289 47.5	267 59.4	59.1	45 05.6	24.6	106 59.0	29.6	266 44.8	11.0	Eltanin	81 21.4	N 61 55.4			
	09	304 50.0	283 01.4	59.6	60 07.0	24.8	122 01.8	29.7	281 47.0	11.1	Enif	44 24.2	N 61 55.7			
	10	319 52.4	298 03.5	60.0	75 08.5	25.0	137 04.5	29.8	296 49.2	11.2	Fomalhaut	16 01.6	S 60 47.3			
	11	334 54.9	313 05.5	60.7	90 09.9	25.2	152 07.3	30.0	311 51.4	11.4						
	12	349 57.4	328 07.6	N16 01.2	105 11.4	S20 25.4	167 10.0	N 0 30.1	326 53.6	N 7 11.5	Gacrux	172 58.0	S 56 56.5			
	13	4 59.8	343 09.6	01.7	120 12.8	25.6	182 12.8	30.2	341 55.8	11.6	Gienah	176 26.5	N 57 22.4			
	14	20 02.3	358 11.7	02.3	135 14.3	25.8	197 15.5	30.3	356 58.0	11.7	Hadar	148 35.3	N 58 03.5			
	15	35 04.8	13 13.8	02.8	150 15.7	26.0	212 18.3	30.5	12 00.2	11.8	Hamal	328 36.6	N 58 24.1			
	16	50 07.2	28 15.8	03.3	165 17.1	26.2	227 21.0	30.6	27 02.4	11.9	Kaus Aust.	84 26.2	S 58 24.1			
	17	65 09.7	43 17.9	03.8	180 18.6	26.4	242 23.8	30.7	42 04.6	12.0						
	18	80 12.2	58 20.0	N16 04.4	195 20.0	S20 26.6	257 26.5	N 0 30.9	57 06.8	N 7 12.1	Kochab	137 17.2	N 74 26.5			
	19	95 14.6	73 22.0	04.9	210 21.5	26.8	272 29.3	31.0	72 09.0	12.2	Markab	14 12.0	N 75 03.0			
	20	110 17.1	88 24.1	05.4	225 22.9	27.0	287 32.0	31.1	87 11.2	12.4	Menkar	314 24.2	N 75 03.2			
	21	125 19.6	103 26.2	05.9	240 24.4	27.2	302 34.8	31.2	102 13.4	12.5	Menkent	148 46.9	N 75 03.4			
	22	140 22.0	118 28.3	06.4	255 25.8	27.4	317 37.5	31.4	117 15.6	12.6	Miaplacidus	221 46.5	S 69 35.5			
	23	155 24.5	133 30.4	07.0	270 27.3	27.6	332 40.3	31.6	132 17.8	12.7						
	13	00	170 26.9	148 32.4	N16 07.5	285 28.7	S20 27.8	347 43.0	N 0 31.6	147 20.0	N 7 12.8	Mirfak	309 28.7	N 49 45.4		
01		185 29.4	163 34.5	08.0	300 30.2	28.0	2 45.8	31.8	162 22.2	12.9	Nunki	76 39.8	S 50 20.3			
02		200 31.9	178 36.6	08.5	315 31.6	28.2	17 48.5	31.9	177 24.4	13.0	Peacock	54 12.6	S 50 50.1			
03		215 34.3	193 38.7	09.0	330 33.1	28.4	32 51.3	32.0	192 26.6	13.1	Pollux	244 28.3	N 50 06.2			
04		230 36.8	208 40.8	09.5	345 34.6	28.6	47 54.0	32.1	207 28.8	13.2	Procyon	245 34.5	N 50 18.3			
	05	245 39.3	223 43.0	10.0	0 36.0	28.8	62 56.8	32.3	222 31.0	13.3						
	06	260 41.7	238 45.1	N16 10.5	15 37.5	S20 29.0	77 59.5	N 0 32.4	237 33.2	N 7 13.5	Rasalhague	96 37.5	N 52 34.5			
	07	275 44.2	253 47.2	11.0	30 38.9	29.2	93 02.3	32.5	252 35.4	13.6	Regulus	208 18.7	N 52 07.1			
	08	290 46.7	268 49.3	11.5	45 40.4	29.4	108 05.0	32.7	267 37.6	13.7	Rigel	281 44.2	S 58 14.2			
	09	305 49.1	283 51.4	12.0	60 41.8	29.6	123 07.8	32.8	282 39.8	13.8	Rigel Kent.	140 37.2	S 60 42.4			
	10	320 51.6	298 53.5	12.5	75 43.3	29.8	138 10.5	32.9	297 41.9	13.9	Sabik	102 50.9	S 61 41.5			
	11	335 54.1	313 55.7	13.0	90 44.7	30.0	153 13.3	33.0	312 44.1	14.0						
	12	350 56.5	328 57.8	N16 13.5	105 46.2	S20 30.2	168 16.0	N 0 33.2	327 46.3	N 7 14.1	Schedar	350 19.6	N 56 22.2			
	13	5 59.0	343 59.9	14.0	120 47.7	30.4	183 18.8	33.3	342 48.5	14.2	Shaula	97 07.3	S 57 05.0			
	14	21 01.4	359 02.1	14.5	135 49.1	30.6	198 21.5	33.4	357 50.7	14.3	Sirius	259 03.1	S 56 40.4			
	15	36 03.9	14 04.2	14.9	150 50.6	30.8	213 24.3	33.5	12 52.9	14.4	Spica	150 06.2	S 56 11.0			
	16	51 06.4	29 06.4	15.4	165 52.0	31.0	228 27.1	33.7	27 55.1	14.6	Suhail	223 16.8	S 56 18.6			
	17	66 08.8	44 08.5	15.9	180 53.5	31.2	243 29.8	33.8	42 57.3	14.7						
	18	81 11.3	59 10.7	N16 16.4	195 55.0	S20 31.3	258 32.6	N 0 33.9	57 59.5	N 7 14.8	Vega	81 01.8	N 58 44.6			
	19	96 13.8	74 12.8	16.9	210 56.4	31.5	273 35.3	34.1	73 01.7	14.9	Zuben'ubi	137 42.3	S 58 55.0			

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise							
		G.H.A.	Dec.	G.H.A.	v	Dec.	d	H.P.		Naut.	Civil		I	II	III	IV				
d.	h.	°	'	°	'	°	'	'	°	h	m	h	m	h	m	h	m	h	m	
11	00	177	26.8 S	3	52.0	274	17.7	3.9	S 27	47.4	4.6	59.2	N 72	04	13	05	34	06	41	
	01	192	26.9			288	40.6	3.8	S 27	52.0	4.3	59.2	N 70	04	24	05	37	06	37	
	02	207	27.1			303	03.4	3.8	S 27	56.3	4.2	59.2	68	04	33	05	39	06	35	
	03	222	27.3		49.1	317	26.2	3.7	S 28	00.5	4.0	59.2	66	04	41	05	41	06	32	
	04	237	27.4		48.1	331	48.9	3.7	S 28	04.5	3.8	59.2	64	04	47	05	43	06	30	
	05	252	27.6		47.1	346	11.6	3.6	S 28	08.3	3.6	59.2	62	04	52	05	44	06	28	
	06	267	27.8 S	3	46.2		0 34.2	3.5	S 28	11.9	3.4	59.2	60	04	57	05	45	06	27	
	07	282	27.9		45.2	14	56.7	3.5	S 28	15.3	3.2	59.2	N 58	05	01	05	46	06	25	
	08	297	28.1		44.2	29	19.2	3.5	S 28	18.5	3.0	59.2	56	05	04	05	47	06	24	
	09	312	28.2		43.2	43	41.7	3.4	S 28	21.5	2.8	59.2	54	05	07	05	48	06	23	
TUESDAY	10	327	28.4		42.2	58	04.1	3.4	S 28	24.3	2.7	59.2	52	05	09	05	48	06	22	
	11	342	28.6		41.2	72	26.5	3.3	S 28	27.0	2.4	59.2	50	05	11	05	49	06	21	
	12	357	28.7 S	3	40.3	86	48.8	3.3	S 28	29.4	2.2	59.3	45	05	16	05	49	06	19	
	13	12	28.9		39.3	101	11.1	3.2	S 28	31.6	2.1	59.3	N 40	05	19	05	50	06	17	
	14	27	29.1		38.3	115	33.3	3.2	S 28	33.7	1.8	59.3	35	05	21	05	50	06	15	
	15	42	29.2		37.3	129	55.5	3.2	S 28	35.5	1.7	59.3	30	05	22	05	50	06	14	
	16	57	29.4		36.3	144	17.7	3.2	S 28	37.2	1.4	59.3	20	05	24	05	49	06	11	
	17	72	29.6		35.4	158	39.9	3.1	S 28	38.6	1.3	59.3	N 10	05	24	05	48	06	09	
	18	87	29.7 S	3	34.4	173	02.0	3.1	S 28	39.9	1.0	59.3	0	05	22	05	46	06	07	
	19	102	29.9		33.4	187	24.1	3.1	S 28	40.9	0.9	59.3	S 10	05	19	05	43	06	04	
WEDNESDAY	20	117	30.1		32.4	201	46.2	3.1	S 28	41.8	0.6	59.3	20	05	14	05	39	06	01	
	21	132	30.2		31.4	216	08.3	3.1	S 28	42.4	0.5	59.3	30	05	06	05	34	05	58	
	22	147	30.4		30.4	230	30.4	3.0	S 28	42.9	0.2	59.3	35	05	01	05	31	05	56	
	23	162	30.6		29.5	244	52.4	3.1	S 28	43.1	0.1	59.3	40	04	55	05	27	05	54	
	00	177	30.7 S	3	28.5	259	14.5	3.0	S 28	43.2	0.2	59.3	45	04	47	05	22	05	52	
	01	192	30.9		27.5	273	36.5	3.0	S 28	43.0	0.3	59.3	S 50	04	37	05	16	05	48	
	02	207	31.1		26.5	287	58.5	3.1	S 28	42.7	0.6	59.3	52	04	32	05	13	05	47	
	03	222	31.2		25.5	302	20.6	3.0	S 28	42.1	0.7	59.3	54	04	26	05	10	05	46	
	04	237	31.4		24.5	316	42.6	3.1	S 28	41.4	1.0	59.3	56	04	20	05	06	05	44	
	05	252	31.6		23.6	331	04.7	3.0	S 28	40.4	1.1	59.3	58	04	13	05	02	05	42	
THURSDAY	06	267	31.7 S	3	22.6	345	26.7	3.1	S 28	39.3	1.4	59.3	S 60	04	05	04	57	05	40	
	07	282	31.9		21.6	359	48.8	3.0	S 28	37.9	1.5	59.3								
	08	297	32.1		20.6	14	10.8	3.1	S 28	36.4	1.8	59.3	Lat.	Sun-set	Twilight		Moonset			
	09	312	32.2		19.6	28	32.9	3.1	S 28	34.6	1.9	59.3			Civil	Naut.	I	II	III	IV
	10	327	32.4		18.6	42	55.0	3.2	S 28	32.7	2.2	59.3					h m	h m	h m	h m
	11	342	32.6		17.7	57	17.2	3.1	S 28	30.5	2.3	59.3								
	12	357	32.7 S	3	16.7	71	39.3	3.2	S 28	28.2	2.6	59.3	N 72	17	41	18	49	20	11	
	13	12	32.9		15.7	86	01.5	3.2	S 28	25.6	2.7	59.3	N 70	17	44	18	45	19	59	
	14	27	33.1		14.7	100	23.7	3.3	S 28	22.9	3.0	59.3	68	17	47	18	42	19	49	
	15	42	33.2		13.7	114	46.0	3.2	S 28	19.9	3.1	59.3	66	17	49	18	40	19	41	
FRIDAY	16	57	33.4		12.7	129	08.2	3.4	S 28	16.8	3.3	59.4	64	17	51	18	39	19	35	
	17	72	33.6		11.8	143	30.6	3.3	S 28	13.5	3.6	59.4	62	17	53	18	37	19	29	
	18	87	33.8 S	3	10.8	157	52.9	3.4	S 28	09.9	3.7	59.4	60	17	54	18	36	19	25	
	19	102	33.9		09.8	172	15.3	3.4	S 28	06.2	3.9	59.4	N 58	17	56	18	35	19	21	
	20	117	34.1		08.8	186	37.7	3.5	S 28	02.3	4.1	59.4	56	17	57	18	34	19	17	
	21	132	34.3		07.8	201	00.2	3.6	S 27	58.2	4.3	59.4	54	17	58	18	33	19	14	
	22	147	34.4		06.8	215	22.8	3.5	S 27	53.9	4.5	59.4	52	17	59	18	32	19	12	
	23	162	34.6		05.8	229	45.3	3.7	S 27	49.4	4.7	59.4	50	18	00	18	32	19	10	
	00	177	34.8 S	3	04.9	244	08.0	3.7	S 27	44.7	4.9	59.4	45	18	02	18	31	19	05	
	SATURDAY	01	192	34.9		03.9	258	30.7	3.7	S 27	39.8	5.0	59.4	N 40	18	03	18	30	19	02
02		207	35.1		02.9	272	53.4	3.8	S 27	34.8	5.3	59.4	35	18	05	18	30	19	00	
03		222	35.3		01.9	287	16.2	3.9	S 27	29.5	5.4	59.4	30	18	06	18	30	18	58	
04		237	35.4		00.9	301	39.1	3.9	S 27	24.1	5.7	59.4	20	18	09	18	31	18	56	
05		252	35.6		2 59.9	316	02.0	4.0	S 27	18.4	5.8	59.4	N 10	18	11	18	32	18	56	
06		267	35.8 S	2	59.0	330	25.0	4.1	S 27	12.6	6.0	59.4	0	18	13	18	34	18	58	
07		282	36.0		58.0	344	48.1	4.2	S 27	06.6	6.2	59.4	S 10	18	15	18	37	19	01	
08		297	36.1		57.0	359	11.3	4.2	S 27	00.4	6.3	59.4	20	18	18	18	40	19	06	
09		312	36.3		56.0	13	34.5	4.3	S 26	54.1	6.6	59.3	30	18	21	18	45	19	13	
10		327	36.5		55.0	27	57.8	4.3	S 26	47.5	6.7	59.3	35	18	23	18	48	19	18	
SUNDAY	11	342	36.6		54.0	42	21.1	4.5	S 26	40.8	6.9	59.3	40	18	25	18	52	19	24	
	12	357	36.8 S	2	53.0	56	44.6	4.5	S 26	33.9	7.1	59.3	45	18	27	18	57	19	32	
	13	12	37.0		52.1	71	08.1	4.6	S 26	26.8	7.2	59.3	S 50	18	30	19	03	19	42	
	14	27	37.2		51.1	85	31.7	4.7	S 26	19.6	7.5	59.3	52	18	32	19	06	19	46	
	15	42	37.3		50.1	99	55.4	4.7	S 26	12.1	7.6	59.3	54	18	33	19	09	19	52	
	16	57	37.5		49.1	114	19.1	4.9	S 26	04.5	7.7	59.3	56	18	35	19	12	19	58	
	17	72	37.7		48.1	128	43.0	4.9	S 25	56.8	8.0	59.3	58	18	36	19	16	20	05	
	18	87	37.8 S	2	47.1	143	06.9	5.1	S 25	48.8	8.1	59.3	S 60	18	39	19	21	20	13	
	19	102	38.0		46.1	157	31.0	5.1	S 25	40.7	8.3	59.3								
	20	117	38.2		45.2	171	55.1	5.2	S 25	32.4	8.4	59.3	Day	SUN		Mer. Pass.	MOON			
21	132	38.4		44.2	186	19.3	5.3	S 25												

		ARIES		VENUS -4.2		MARS +0.2		JUPITER -2.0		SATURN +0.8		STARS				
G.M.T.		G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.	
d	h															
14	00	171 26.1	149 23.7	N 16 19.3	286 03.7	S 20 32.5	348 49.1	N 0 34.7	148 12.7	N 7 15.4			Acamar	315 43.8	S 40 25.8	
	01	186 28.6	164 25.9	19.7	301 05.2	32.7	3 51.8	34.8	163 14.9	15.5			Achernar	335 51.7	S 57 23.7	
	02	201 31.0	179 28.0	20.2	316 06.7	32.9	18 54.6	35.0	178 17.1	15.7			Acrux	173 46.5	S 62 55.7	
	03	216 33.5	194 30.2	20.7	331 08.1	33.1	33 57.3	35.1	193 19.3	15.8			Adhara	255 38.7	S 28 55.9	
	04	231 35.9	209 32.4	21.1	346 09.6	33.3	49 00.1	35.2	208 21.5	15.9			Aldebaran	291 27.9	N 16 27.0	
05	246 38.4	224 34.6	21.6	1 11.1	33.5	64 02.8	35.3	223 23.7	16.0							
06	261 40.9	239 36.8	N 16 22.0	16 12.5	S 20 33.7	79 05.6	N 0 35.5	238 25.9	N 7 16.1				Alioth	166 49.1	N 56 07.4	
07	276 43.3	254 39.0	22.5	31 14.0	33.9	94 08.3	35.6	253 28.1	16.2				Alkaid	153 24.5	N 49 27.7	
08	291 45.8	269 41.2	23.0	46 15.5	34.1	109 11.1	35.7	268 30.3	16.3				Al Na'ir	28 25.8	S 47 06.7	
FRI	09	306 48.3	284 43.4	23.4	61 16.9	34.3	124 13.9	35.9	283 32.5	16.4				Anilam	276 20.3	S 1 13.2
	10	321 50.7	299 45.6	23.9	76 18.4	34.5	139 16.6	36.0	298 34.7	16.5				Alphard	218 28.6	S 8 31.5
	11	336 53.2	314 47.8	24.3	91 19.9	34.6	154 19.4	36.1	313 36.8	16.6						
	12	351 55.7	329 50.1	N 16 24.8	106 21.4	S 20 34.8	169 22.1	N 0 36.3	328 39.0	N 7 16.8				Alphecca	126 39.1	N 26 48.7
	13	6 58.1	344 52.3	25.2	121 22.8	35.0	184 24.9	36.4	343 41.2	16.9				Alpheratz	358 18.6	N 28 55.1
DAY	14	22 00.6	359 54.5	25.7	136 24.3	35.2	199 27.6	36.5	358 43.4	17.0				Altair	62 41.0	N 8 46.8
	15	37 03.1	14 56.7	26.1	151 25.8	35.4	214 30.4	36.6	13 45.6	17.1				Ankaa	353 48.8	S 42 28.5
	16	52 05.5	29 59.0	26.6	166 27.2	35.6	229 33.1	36.8	28 47.8	17.2				Antares	113 07.2	S 26 22.0
	17	67 08.0	45 01.2	27.0	181 28.7	35.8	244 35.9	36.9	43 50.0	17.3						
	18	82 10.4	60 03.4	N 16 27.4	196 30.2	S 20 36.0	259 38.6	N 0 37.0	58 52.2	N 7 17.4				Arcturus	146 25.9	N 19 20.3
19	97 12.9	75 05.7	27.9	211 31.7	36.2	274 41.4	37.2	73 54.4	17.5				Atria	108 39.1	S 68 58.3	
20	112 15.4	90 07.9	28.3	226 33.1	36.4	289 44.1	37.3	88 56.6	17.6				Avior	234 31.5	S 59 24.7	
21	127 17.8	105 10.2	28.8	241 34.6	36.6	304 46.9	37.4	103 58.8	17.8				Belatrix	279 07.9	N 6 19.4	
22	142 20.3	120 12.4	29.2	256 36.1	36.8	319 49.7	37.5	119 01.0	17.9				Betelgeuse	271 37.4	N 7 24.2	
23	157 22.8	135 14.7	29.6	271 37.6	36.9	334 52.4	37.7	134 03.2	18.0							
15	00	172 25.2	150 16.9	N 16 30.0	286 39.0	S 20 37.1	349 55.2	N 0 37.8	149 05.4	N 7 18.1				Canopus	264 10.9	S 52 40.8
	01	187 27.7	165 19.2	30.5	301 40.5	37.3	4 57.9	37.9	164 07.6	18.2				Capella	281 23.9	N 45 58.4
	02	202 30.2	180 21.5	30.9	316 42.0	37.5	20 00.7	38.1	179 09.8	18.3				Deneb	49 54.7	N 45 09.8
	03	217 32.6	195 23.7	31.3	331 43.5	37.7	35 03.4	38.2	194 12.0	18.4				Denebola	183 07.3	N 14 44.5
	04	232 35.1	210 26.0	31.7	346 45.0	37.9	50 06.2	38.3	209 14.2	18.5				Diphda	349 29.6	S 18 09.4
05	247 37.6	225 28.3	32.2	1 46.4	38.1	65 08.9	38.4	224 16.4	18.6							
06	262 40.0	240 30.6	N 16 32.6	16 47.9	S 20 38.3	80 11.7	N 0 38.6	239 18.5	N 7 18.8					Dubhe	194 31.4	N 61 55.1
07	277 42.5	255 32.9	33.0	31 49.4	38.5	95 14.5	38.7	254 20.7	18.9				Elinath	278 54.9	N 28 35.2	
08	292 44.9	270 35.2	33.4	46 50.9	38.7	110 17.2	38.8	269 22.9	19.0				Eltanin	91 01.7	N 51 29.0	
SAT	09	307 47.4	285 37.5	33.8	61 52.4	38.8	125 20.0	39.0	284 25.1	19.1				Enif	34 20.2	N 9 43.7
	10	322 49.9	300 39.7	34.2	76 53.8	39.0	140 22.7	39.1	299 27.3	19.2				Fomalhaut	16 01.0	S 29 47.3
	11	337 52.3	315 42.0	34.6	91 55.3	39.2	155 25.5	39.2	314 29.5	19.3						
	12	352 54.8	330 44.4	N 16 35.1	106 56.8	S 20 39.4	170 28.2	N 0 39.4	329 31.7	N 7 19.4				Gacrux	172 38.0	S 56 56.5
	13	7 57.3	345 46.7	35.5	121 58.3	39.6	185 31.0	39.5	344 33.9	19.5				Gienah	176 26.4	S 17 22.4
DAY	14	22 59.7	0 49.0	35.9	136 59.8	39.8	200 33.7	39.6	359 36.1	19.6				Hadar	149 35.2	S 60 13.5
	15	38 02.2	15 51.3	36.3	152 01.3	40.0	215 36.5	39.7	14 38.3	19.8				Hamal	328 38.8	N 23 19.1
	16	53 04.7	30 53.6	36.7	167 02.8	40.2	230 39.3	39.9	29 40.5	19.9				Kaus Aust.	84 28.1	S 34 24.1
	17	68 07.1	45 55.9	37.1	182 04.2	40.4	245 42.0	40.0	44 42.7	20.0						
	18	83 09.6	60 58.3	N 16 37.5	197 05.7	S 20 40.5	260 44.8	N 0 40.1	59 44.9	N 7 20.1				Kochab	137 17.2	N 74 16.5
19	98 12.1	76 00.6	37.9	212 07.2	40.7	275 47.5	40.3	74 47.1	20.2				Markab	14 12.0	N 15 02.2	
20	113 14.5	91 02.9	38.2	227 08.7	40.9	290 50.3	40.4	89 49.3	20.3				Menkar	314 50.2	N 3 58.2	
21	128 17.0	106 05.3	38.6	242 10.2	41.1	305 53.0	40.5	104 51.4	20.4				Menkent	148 46.8	S 36 13.2	
22	143 19.4	121 07.6	39.0	257 11.7	41.3	320 55.8	40.7	119 53.6	20.5				Miaplacidus	221 46.5	S 69 35.5	
23	158 21.9	136 09.9	39.4	272 13.2	41.5	335 58.5	40.8	134 55.8	20.6							
16	00	173 24.4	151 12.3	N 16 39.8	287 14.7	S 20 41.7	351 01.3	N 0 40.9	149 58.0	N 7 20.8				Mirfak	309 28.7	N 49 45.4
	01	188 26.8	166 14.6	40.2	302 16.2	41.8	6 04.1	41.0	165 00.2	20.9				Nunki	76 39.8	S 26 20.3
	02	203 29.3	181 17.0	40.6	317 17.6	42.0	21 06.8	41.2	180 02.4	21.0				Pecock	54 11.9	S 56 50.1
	03	218 31.8	196 19.3	40.9	332 19.1	42.2	36 09.6	41.3	195 04.6	21.1				Pollux	244 08.3	N 28 06.3
	04	233 34.2	211 21.7	41.3	347 20.6	42.4	51 12.3	41.4	210 06.8	21.2				Procyon	245 34.5	N 5 18.3
05	248 36.7	226 24.1	41.7	2 22.1	42.6	66 15.1	41.6	225 09.0	21.3							
06	263 39.2	241 26.4	N 16 42.1	17 23.6	S 20 42.8	81 17.8	N 0 41.7	240 11.2	N 7 21.4					Rasalhague	96 37.4	N 12 34.5
07	278 41.6	256 28.8	42.4	32 25.1	43.0	96 20.6	41.8	255 13.4	21.5				Regulus	208 18.7	N 12 07.1	
08	293 44.1	271 31.2	42.8	47 26.6	43.2	111 23.4	42.0	270 15.6	21.6				Rigel	281 44.2	S 8 14.2	
SUN	09	308 46.5	286 33.6	43.2	62 28.1	43.3	126 26.1	42.1	285 17.7	21.8				Rigel Kent.	140 37.2	S 60 42.4
	10	323 49.0	301 36.0	43.5	77 29.6	43.5	141 28.9	42.2	300 19.9	21.9				Sabik	102 50.8	S 15 41.5
	11	338 51.5	316 38.4	43.9	92 31.1	43.7	156 31.6	42.3	315 22.1	22.0						
	12	353 53.9	331 40.7	N 16 44.3	107 32.6	S 20 43.9	171 34.4	N 0 42.5	330 24.3	N 7 22.1				Schedar	350 19.6	N 56 22.2
	13	8 56.4	346 43.1	44.6	122 34.1	44.1	186 37.1	42.6	345 26.5	22.2				Shaula	97 07.3	S 37 05.0
DAY	14	23 58.9	1 45.5	45.0	137 35.6	44.3	201 39.9	42.7	0 28.7	22.3				Sirius	259 03.1	S 16 40.4
	15	39 01.3	16 47.9	45.3	152 37.1	44.5	216 42.7	42.9	15 30.9	22.4				Spica	159 06.2	S 11 00.2
	16	54 03.8	31 50.4	45.7	167 38.6	44.6	231 45.4	43.0	30 33.1	22.5				Suhail	223 16.8	S 43 18.6
	17	69 06.3	46 52.8	46.1	182 40.1	44.8	246 48.2	43.1	45 35.3	22.6						
	18	84 08.7	61 55.2	N 16 46.4	197 41.6	S 20 45.0	261 50.9	N 0 43.2	60 37.5	N 7 22.8				Vega	81 01.7	N 38 44.8
19	99 11.2	76 57.6	46.8	212 43.1	45.2	276 53.7	43.4	75 39.7	22.9				Zuben'ubi	137 42.3	S 15 55.0	
20	114 13.6	92 00.0	47.1	227 44.6	45.4	291 56.4	43.5	90 41.9	23.0					S.H.A.	Mer. Pass.	
21	129 16.1	107 02.4	47.4	242 46.1	45.6	306 59.2	43.6	105 44.0	23.1							
22	144 18.6	122 04.9	47.8	257 47.6	45.7	322 02.0	43.8	120 46.2	23.2				Venus	337 51.7	13 57	
23	159 21.0	137 07.3	48.1	272 49.1	45.9	337 04.7	43.9	135 48.4	23.3				Mars	114 13.8	4 53	
													Jupiter	177 30.0	0 40	
													Saturn	336 40.2	14 02	
Mer. Pass. 12 28:3		v	2.3	d 0.4	v	1.5	d 0.2	v	2.8	d 0.1	v	2.2	d 0.1			

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise																		
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.		Naut.	Civil		14	15	16	17															
d	h	°	'	°	'	°	'	'	°	h	m	h	m	h	m	h	m	h	m												
14	00	177	38.9 S	2	41.2	229	32.5	5.6	S	24	57.7	9.1	59.3	N 72	03	55	05	18	06	25			07	52	07	02					
	01	192	39.0		40.2	243	57.1	5.6		24	48.6	9.2	59.3	N 70	04	09	05	23	06	24			08	38	07	28	06	51			
	02	207	39.2		39.2	258	21.7	5.8		24	39.4	9.5	59.3	68	04	20	05	27	06	22			07	50	07	09	06	43			
	03	222	39.4		38.3	272	46.5	5.9		24	29.9	9.5	59.3	66	04	29	05	30	06	21	08	27	07	19	06	54	06	36			
	04	237	39.6		37.3	287	11.4	6.0		24	20.4	9.7	59.3	64	04	36	05	32	06	20	07	21	06	56	06	41	06	30			
	05	252	39.7		36.3	301	36.4	6.0		24	10.7	9.9	59.3	62	04	42	05	35	06	19	06	46	06	46	06	37	06	30	06	25	
	06	267	39.9	S	2	35.3	316	01.4	6.2	S	24	00.8	10.0	59.3	60	04	47	05	36	06	18	06	20	06	22	06	21	06	20		
	07	282	40.1		34.3	330	26.6	6.3		23	50.8	10.2	59.3	N 58	04	52	05	38	06	17	06	00	06	08	06	13	06	16			
	08	297	40.3		33.3	344	51.9	6.4		23	40.6	10.3	59.3	56	04	56	05	39	06	16	05	43	05	57	06	06	06	06	12		
	F 09	312	40.4		32.3	359	17.3	6.4		23	30.3	10.4	59.3	54	04	59	05	40	06	16	05	28	05	47	05	59	06	09	06	09	
	R 10	327	40.6		31.3	13	42.7	6.6		23	19.9	10.6	59.3	52	05	02	05	41	06	15	05	15	05	38	05	54	06	06	06	06	
	I 11	342	40.8		30.4	28	08.3	6.7		23	09.3	10.8	59.3	50	05	05	05	42	06	14	05	04	05	30	05	48	06	03	06	03	
	D 12	357	40.9	S	2	29.4	42	34.0	6.8	S	22	58.5	10.8	59.2	45	05	10	05	44	06	13	04	41	05	12	05	37	05	57	05	57
	A 13	12	41.1		28.4	56	59.8	6.9		22	47.7	11.0	59.2	N 40	05	14	05	45	06	12	04	22	04	58	05	27	05	52	05	52	
Y 14	27	41.3		27.4	71	25.7	7.0		22	36.7	11.2	59.2	35	05	17	05	46	06	11	04	06	04	46	05	19	05	48	05	48		
15	42	41.5		26.4	85	51.7	7.1		22	25.5	11.3	59.2	30	05	19	05	46	06	10	03	52	04	35	05	12	05	44	05	44		
16	57	41.6		25.4	100	17.8	7.2		22	14.2	11.4	59.2	20	05	21	05	47	06	09	03	29	04	17	04	59	05	37	05	37		
17	72	41.8		24.4	114	44.0	7.3		22	02.8	11.5	59.2	N 10	05	22	05	46	06	07	03	08	04	01	04	48	05	31	05	31		
18	87	42.0	S	2	23.5	129	10.3	7.4	S	21	51.3	11.7	59.2	0	05	21	05	45	06	06	02	49	03	46	04	37	05	26	05	26	
19	102	42.2		22.5	143	36.7	7.5		21	39.6	11.8	59.2	S 10	05	19	05	43	06	04	02	30	03	30	04	27	05	20	05	20		
20	117	42.3		21.5	158	03.2	7.6		21	27.8	12.0	59.2	20	05	15	05	40	06	02	02	09	03	14	04	16	05	14	05	14		
21	132	42.5		20.5	172	29.8	7.8		21	15.8	12.0	59.2	30	05	08	05	36	06	00	01	45	02	55	04	03	05	07	05	07		
22	147	42.7		19.5	186	56.6	7.8		21	03.8	12.2	59.2	35	05	04	05	33	05	59	01	31	02	44	03	55	05	03	05	03		
23	162	42.9		18.5	201	23.4	7.9		20	51.6	12.3	59.2	40	04	58	05	30	05	57	01	15	02	31	03	47	04	59	04	59		
15	00	177	43.0 S	2	17.5	215	50.3	8.1	S	20	39.3	12.4	59.2	S 50	04	42	05	21	05	53	00	30	01	58	03	24	04	47	04	47	
01	192	43.2		16.5	230	17.4	8.1		20	26.9	12.5	59.1	52	04	38	05	18	05	52	00	18	01	49	03	18	04	44	04	44		
02	207	43.4		15.6	244	44.5	8.3		20	14.4	12.6	59.1	54	04	33	05	16	05	51	00	04	01	39	03	12	04	41	04	41		
03	222	43.6		14.6	259	11.8	8.3		20	01.8	12.8	59.1	56	04	27	05	13	05	50	25	28	01	28	03	05	04	38	04	38		
04	237	43.7		13.6	273	39.1	8.5		19	49.0	12.9	59.1	58	04	21	05	09	05	49	25	15	01	15	02	57	04	34	04	34		
05	252	43.9		12.6	288	06.6	8.6		19	36.1	12.9	59.1	S 60	04	13	05	05	05	47	25	00	01	00	02	48	04	29	04	29		
06	267	44.1	S	2	11.6	302	34.2	8.6	S	19	23.2	13.1	59.1																		
07	282	44.3		10.6	317	01.8	8.8		19	10.1	13.2	59.1																			
S 08	297	44.4		09.6	331	29.6	8.9		18	56.9	13.3	59.1																			
A 09	312	44.6		08.6	345	57.5	8.9		18	43.6	13.4	59.1																			
T 10	327	44.8		07.7	0	25.4	9.1		18	30.2	13.5	59.0																			
U 11	342	45.0		06.7	14	53.5	9.2		18	16.7	13.6	59.0																			
R 12	357	45.1	S	2	05.7	29	21.7	9.2	S	18	03.1	13.6	59.0	N 72	17	55	19	03	20	27			14	17	16	48	16	55	16	55	
D 13	12	45.3		04.7	43	49.9	9.4		17	49.5	13.8	59.0	N 70	17	57	18	58	20	13			11	41	14	38	16	55	16	55		
A 14	27	45.5		03.7	58	18.3	9.5		17	35.7	13.9	59.0	68	17	58	18	53	20	01			12	28	14	55	17	01	17	01		
Y 15	42	45.7		02.7	72	46.8	9.6		17	21.8	13.9	59.0	66	17	59	18	50	19	52	09	55	12	57	15	08	17	05	17	05		
16	57	45.8		01.7	87	15.4	9.6		17	07.9	14.1	59.0	64	18	00	18	47	19	44	10	59	13	19	15	19	07	17	09	17	09	
17	72	46.0		00.7	101	44.0	9.8		16	53.8	14.1	59.0	62	18	01	18	45	19	38	11	34	13	37	15	29	17	13	17	13		
18	87	46.2	S	1	59.8	116	12.8	9.8	S	16	39.7	14.2	58.9	60	18	02	18	43	19	32	11	59	13	51	15	37	17	15	17	15	
19	102	46.4		58.8	130	41.6	10.0		16	25.5	14.3	58.9	N 58	18	02	18	42	19	28	12	18	14	04	15	44	17	18	17	18		
20	117	46.5		57.8	145	10.6	10.0		16	11.2	14.4	58.9	56	18	03	18	40	19	24	12	35	14	14	15	50	17	20	17	20		
21	132	46.7		56.8	159	39.6	10.2		15	56.8	14.5	58.9	54	18	04	18	39	19	20	12	49	14	24	15	55	17	22	17	22		
22	147	46.9		55.8	174	08.8	10.2		15	42.3	14.5	58.9	52	18	04	18	38	19	17	13	01	14	32	16	00	17	24	17	24		
23	162</																														

G.M.T.	ARIES		VENUS -4.2		MARS +0.2		JUPITER -2.0		SATURN +0.7		STARS		
	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "
17	174 23.5	152 09.7 N16 48.5	287 50.6 S20 46.1	352 07.5 N 0 44.0	150 50.6 N 7 23.4	Acamar	315 43.8	S 40 25.8					
00	189 26.0	167 12.2	302 52.1	7 10.2	165 52.8	Alchernar	335 51.7	S 57 23.7					
01	204 28.4	182 14.6	317 53.6	22 13.0	180 55.0	Acruz	173 46.5	S 62 55.8					
02	219 30.9	197 17.1	332 55.1	37 15.7	195 57.2	Adhara	255 38.7	S 28 55.9					
03	234 33.4	212 19.5	347 56.6	52 18.5	210 59.4	Aldebaran	291 27.9	N 16 27.0					
04	249 35.8	227 22.0	2 58.1	67 21.3	226 01.6								
05													
06	264 38.3	242 24.5 N16 50.5	17 59.6 S20 47.2	82 24.0 N 0 44.8	241 03.8 N 7 24.1	Alioth	166 49.1	N 56 07.4					
07	279 40.7	257 26.9	33 01.2	97 26.8	256 05.9	Alkaid	153 24.5	N 49 27.7					
08	294 43.2	272 29.4	48 02.7	112 29.5	271 08.1	Al Na'ir	28 25.8	S 47 06.7					
09	309 45.7	287 31.9	63 04.2	127 32.3	286 10.3	Alnilam	276 20.3	S 1 13.2					
10	324 48.1	302 34.3	78 05.7	142 35.0	301 12.5	Alphard	218 28.7	S 8 31.5					
11	339 50.6	317 36.8	93 07.2	157 37.8	316 14.7								
MONDAY													
12	354 53.1	332 39.3 N16 52.4	108 08.7 S20 48.3	172 40.6 N 0 45.6	331 16.9 N 7 24.8	Alphecca	126 39.0	N 26 48.7					
13	9 55.5	347 41.8	123 10.2	187 43.3	346 19.1	Alpheratz	358 18.6	N 28 55.1					
14	24 58.0	2 44.3	138 11.7	202 46.1	1 21.3	Altair	62 41.0	N 8 46.8					
15	40 00.5	17 46.8	153 13.2	217 48.8	16 23.5	Ankaa	353 48.8	S 42 28.5					
16	55 02.9	32 49.3	168 14.8	232 51.6	31 25.7	Antares	113 07.2	S 26 22.0					
17	70 05.4	47 51.8	183 16.3	247 54.4	46 27.8								
18	85 07.9	62 54.3 N16 54.2	198 17.8 S20 49.4	262 57.1 N 0 46.4	61 30.0 N 7 25.4	Arcturus	146 25.8	N 19 20.3					
19	100 10.3	77 56.8	213 19.3	277 59.9	76 32.2	Atria	108 39.1	S 68 58.3					
20	115 12.8	92 59.3	228 20.8	293 02.6	91 34.4	Avior	234 31.5	S 59 24.7					
21	130 15.2	108 01.8	243 22.3	308 05.4	106 36.6	Bellatrix	279 07.9	N 6 19.4					
22	145 17.7	123 04.3	258 23.9	323 08.1	121 38.8	Betelgeuse	271 37.4	N 7 24.2					
23	160 20.2	138 06.8	273 25.4	338 10.9	136 41.0								
18	175 22.6	153 09.4 N16 56.0	288 26.9 S20 50.5	353 13.7 N 0 47.1	151 43.2 N 7 26.1	Canopus	264 10.9	S 52 40.9					
00	190 25.1	168 11.9	303 28.4	8 16.4	166 45.4	Capella	281 23.9	N 45 58.4					
01	205 27.6	183 14.4	318 29.9	23 19.2	181 47.6	Deneb	49 54.7	N 45 09.8					
02	220 30.0	198 17.0	333 31.4	38 21.9	196 49.7	Denebola	183 07.3	N 14 44.5					
03	235 32.5	213 19.5	348 33.0	53 24.7	211 51.9	Diphda	349 29.6	S 18 09.4					
04	250 35.0	228 22.1	3 34.5	68 27.5	226 54.1								
05													
06	265 37.4	243 24.6 N16 57.7	18 36.0 S20 51.6	83 30.2 N 0 47.9	241 56.3 N 7 26.8	Dubhe	194 31.4	N 61 55.1					
07	280 39.9	258 27.2	33 37.5	98 33.0	256 58.5	Elnath	278 54.9	N 28 35.2					
08	295 42.4	273 29.7	48 39.1	113 35.7	272 00.7	Eltanin	91 01.7	N 51 29.0					
09	310 44.8	288 32.3	63 40.6	128 38.5	287 02.9	Enif	34 20.2	N 9 43.7					
10	325 47.3	303 34.9	78 42.1	143 41.3	302 05.1	Fomalhaut	16 01.0	S 29 47.3					
11	340 49.7	318 37.4	93 43.6	158 44.0	317 07.3								
12	355 52.2	333 40.0 N16 59.3	108 45.2 S20 52.6	173 46.8 N 0 48.7	332 09.4 N 7 27.4	Gacrux	172 38.0	S 56 56.5					
13	10 54.7	348 42.6	123 46.7	188 49.5	347 11.6	Gienah	176 26.4	S 17 22.4					
14	25 57.1	3 45.2	138 48.2	203 52.3	2 13.8	Hadar	149 35.2	S 60 13.5					
15	40 59.6	18 47.7	153 49.7	218 55.1	17 16.0	Hamal	328 38.8	N 23 19.1					
16	56 02.1	33 50.3	168 51.3	233 57.8	32 18.2	Kaus Aust.	84 28.1	S 34 24.1					
17	71 04.5	48 52.9	183 52.8	249 00.6	47 20.4								
18	86 07.0	63 55.5 N17 00.9	198 54.3 S20 53.7	264 03.3 N 0 49.5	62 22.6 N 7 28.1	Kochab	137 17.1	N 74 16.5					
19	101 09.5	78 58.1	213 55.9	279 06.1	77 24.8	Markab	14 12.0	N 15 02.2					
20	116 11.9	94 00.7	228 57.4	294 08.8	92 26.9	Menkar	314 50.2	N 3 58.2					
21	131 14.4	109 03.3	243 58.9	309 11.6	107 29.1	Menkent	148 46.8	S 36 13.2					
22	146 16.9	124 05.9	259 00.5	324 14.4	122 31.3	Miaplacidus	221 46.6	S 69 35.5					
23	161 19.3	139 08.6	274 02.0	339 17.1	137 33.5								
19	176 21.8	154 11.2 N17 02.4	289 03.5 S20 54.8	354 19.9 N 0 50.3	152 35.7 N 7 28.8	Mirfak	309 28.7	N 49 45.4					
00	191 24.2	169 13.8	304 05.1	9 22.6	167 37.9	Nunki	76 39.7	S 26 20.3					
01	206 26.7	184 16.4	319 06.6	24 25.4	182 40.1	Peacock	54 11.9	S 56 50.1					
02	221 29.2	199 19.1	334 08.1	39 28.2	197 42.3	Pollux	244 08.3	N 28 06.3					
03	236 31.6	214 21.7	349 09.7	54 30.9	212 44.5	Procyon	245 34.5	N 5 18.3					
04	251 34.1	229 24.3	4 11.2	69 33.7	227 46.6								
05													
06	266 36.6	244 27.0 N17 03.8	19 12.7 S20 55.8	84 36.4 N 0 51.1	242 48.8 N 7 29.5	Rasalhague	96 37.4	N 12 34.5					
07	281 39.0	259 29.6	34 14.3	99 39.2	257 51.0	Regulus	208 18.7	N 12 07.1					
08	296 41.5	274 32.3	49 15.8	114 42.0	272 53.2	Rigel	281 44.2	S 8 14.2					
09	311 44.0	289 34.9	64 17.3	129 44.7	287 55.4	Rigel Kent.	140 37.2	S 60 42.4					
10	326 46.4	304 37.6	79 18.9	144 47.5	302 57.6	Sabik	102 50.8	S 15 41.5					
11	341 48.9	319 40.3	94 20.4	159 50.2	317 59.8								
12	356 51.4	334 42.9 N17 05.1	109 22.0 S20 56.9	174 53.0 N 0 51.8	333 01.9 N 7 30.1	Schedar	350 19.6	N 56 22.1					
13	11 53.8	349 45.6	124 23.5	189 55.8	348 04.1	Shaula	97 07.3	S 37 05.0					
14	26 56.3	4 48.3	139 25.0	204 58.5	3 06.3	Sirius	259 03.1	S 16 40.4					
15	41 58.7	19 50.9	154 26.6	220 01.3	18 08.5	Spica	159 06.2	S 11 00.2					
16	57 01.2	34 53.6	169 28.1	235 04.0	33 10.7	Suhail	223 16.9	S 43 18.6					
17	72 03.7	49 56.3	184 29.7	250 06.8	48 12.9								
18	87 06.1	64 59.0 N17 06.3	199 31.2 S20 57.9	265 09.6 N 0 52.6	63 15.1 N 7 30.8	Vega	81 01.7	N 38 44.8					
19	102 08.6	80 01.7	214 32.8	280 12.3	78 17.3	Zuben'ubi	137 42.2	S 15 55.0					
20	117 11.1	95 04.4	229 34.3	295 15.1	93 19.4								
21	132 13.5	110 07.1	244 35.9	310 17.8	108 21.6								
22	147 16.0	125 09.8	259 37.4	325 20.6	123 23.8	Venus	337 46.8	13 45					
23	162 18.5	140 12.5	274 38.9	340 23.4	138 26.0	Mars	113 04.3	4 46					
						Jupiter	177 51.1	0 27					
						Saturn	336 20.6	13 51					
Mer. Pass. 12 16.5		v 2.6 d 0.3	v 1.5 d 0.2	v 2.8 d 0.1	v 2.2 d 0.1								

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise							
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	17	18	19	20			
d	h	°	'	°	'	°	'	°	'	°	'	°	'	°	'	°	'		
17	00	177	51.5 S	1	30.1	191	16.4 12.3	S	9	04.0 16.0	58.4	N 70	03 53	05 09	06 10	06 51	06 22	05 55	05 24
	01	192	51.7		29.1	205	47.7 12.4		8	48.0 16.0	58.4	68	04 06	05 14	06 09	06 43	06 21	06 01	05 38
	02	207	51.9		28.1	220	19.1 12.4		8	32.0 16.0	58.4	66	04 16	05 18	06 09	06 36	06 20	06 06	05 50
	03	222	52.1		27.1	234	50.5 12.5		8	16.0 16.0	58.4	64	04 25	05 22	06 09	06 30	06 20	06 10	06 00
	04	237	52.2		26.2	249	22.0 12.6		8	00.0 16.1	58.4	62	04 32	05 25	06 09	06 25	06 19	06 14	06 08
	05	252	52.4		25.2	263	53.6 12.6		7	43.9 16.1	58.3	60	04 38	05 27	06 09	06 20	06 18	06 17	06 15
	06	267	52.6 S	1	24.2	278	25.2 12.7	S	7	27.8 16.1	58.3	N 58	04 43	05 29	06 08	06 16	06 18	06 20	06 22
	07	282	52.8		23.2	292	56.9 12.7		7	11.7 16.2	58.3	56	04 48	05 31	06 08	06 12	06 17	06 22	06 28
	08	297	53.0		22.2	307	28.6 12.8		6	55.5 16.2	58.3	54	04 51	05 33	06 08	06 09	06 17	06 25	06 33
	M 09	312	53.1		21.2	322	00.4 12.9		6	39.3 16.2	58.3	52	04 55	05 34	06 08	06 06	06 17	06 27	06 38
18	00	327	53.3		20.2	336	32.3 12.9		6	23.1 16.2	58.2	50	04 58	05 36	06 08	06 03	06 16	06 29	06 42
	01	342	53.5		19.2	351	04.2 13.0		6	06.9 16.2	58.2	45	05 04	05 38	06 08	05 57	06 15	06 33	06 51
	D 12	357	53.7 S	1	18.3	5 36.2 13.0	S	5	50.7 16.3	58.2	N 40	05 09	05 40	06 07	05 52	06 15	06 37	06 59	
	A 13	12	53.9		17.3	20 08.2 13.0		5	34.4 16.2	58.2	35	05 12	05 42	06 07	05 48	06 14	06 40	07 06	
	Y 14	27	54.0		16.3	34 40.2 13.1		5	18.2 16.3	58.1	30	05 15	05 43	06 07	05 44	06 14	06 43	07 12	
	15	42	54.2		15.3	49 12.3 13.2		5	01.9 16.3	58.1	20	05 19	05 44	06 06	05 37	06 13	06 48	07 23	
	16	57	54.4		14.3	63 44.5 13.2		4	45.6 16.3	58.1	N 10	05 20	05 45	06 06	05 31	06 12	06 52	07 32	
	17	72	54.6		13.3	78 16.7 13.3		4	29.3 16.3	58.1	0	05 20	05 44	06 05	05 26	06 12	06 56	07 41	
	18	87	54.8 S	1	12.3	92 49.0 13.3	S	4	13.0 16.3	58.1	S 10	05 19	05 43	06 04	05 20	06 11	07 00	07 49	
	19	102	54.9		11.3	107 21.3 13.3		3	56.7 16.3	58.0	20	05 16	05 41	06 03	05 14	06 10	07 05	07 59	
20	117	55.1		10.3	121 53.6 13.4		3	40.4 16.3	58.0	30	05 10	05 38	06 02	05 07	06 10	07 10	08 10		
21	132	55.3		09.4	136 26.0 13.4		3	24.1 16.3	58.0	35	05 06	05 36	06 01	05 03	06 09	07 13	08 16		
22	147	55.5		08.4	150 58.4 13.5		3	07.8 16.3	58.0	40	05 02	05 33	06 00	04 59	06 09	07 16	08 23		
23	162	55.7		07.4	165 30.9 13.5		2	51.5 16.4	57.9	45	04 55	05 30	05 59	04 54	06 08	07 20	08 32		
18	00	177	55.8 S	1	06.4	180 03.4 13.6	S	2	35.1 16.3	57.9	S 50	04 47	05 26	05 58	04 47	06 07	07 25	08 42	
	01	192	56.0		05.4	194 36.0 13.5		2	18.8 16.3	57.9	52	04 44	05 24	05 58	04 44	06 07	07 27	08 47	
	02	207	56.2		04.4	An Annular Eclipse													
	03	222	56.4		03.4	of the Sun occurs on													
	04	237	56.6		02.4	this date. See page 5.													
	05	252	56.8		01.4														
	06	267	56.9 S	1	00.5	296 24.7 13.8	S	0	24.8 16.3	57.7	Lat.	Sun-set	Twilight		Moonset				
	07	282	57.1		0 59.5	310 57.5 13.9	S	0	08.5 16.2	57.7			Civil	Naut.	17	18	19	20	
	08	297	57.3		58.5	325 30.4 13.8	N	0	07.7 16.2	57.7	°	h m	h m	h m	h m	h m	h m	h m	
	T 09	312	57.5		57.5	340 03.2 13.9	N	0	23.9 16.3	57.6	N 72	18 09	19 17	20 45	16 48	19 04	21 22	24 06	
10	327	57.7		56.5	354 36.1 13.9	N	0	40.2 16.1	57.6	N 70	18 09	19 10	20 27	16 55	19 01	21 07	23 25		
11	342	57.8		55.5	9 09.0 13.9	S	0	56.3 16.2	57.6	68	18 09	19 05	20 14	17 01	18 58	20 55	22 58		
12	357	58.0 S	0	54.5	23 41.9 14.0	S	1	12.5 16.2	57.6	66	18 09	19 00	20 03	17 05	18 56	20 45	22 38		
13	12	58.2		53.5	38 14.9 13.9	S	1	28.7 16.1	57.5	64	18 09	18 56	19 54	17 09	18 54	20 37	22 22		
14	27	58.4		52.5	52 47.8 14.0	S	1	44.8 16.1	57.5	62	18 09	18 53	19 47	17 13	18 52	20 30	22 08		
15	42	58.6		51.6	67 20.8 14.0	S	2	00.9 16.1	57.5	60	18 09	18 51	19 40	17 15	18 50	20 23	21 57		
16	57	58.8		50.6	81 53.8 14.1	N	2	17.0 16.1	57.5	N 58	18 09	18 48	19 35	17 18	18 49	20 18	21 48		
17	72	58.9		49.6	96 26.9 14.0	S	2	33.1 16.0	57.4	56	18 09	18 46	19 30	17 20	18 48	20 14	21 39		
18	87	59.1 S	0	48.6	110 59.9 14.0	S	2	49.1 16.0	57.4	54	18 09	18 45	19 26	17 22	18 47	20 09	21 32		
19	102	59.3		47.6	125 32.9 14.1	S	3	05.1 16.0	57.4	52	18 09	18 43	19 23	17 24	18 46	20 06	21 25		
20	117	59.5		46.6	140 06.0 14.1	S	3	21.1 15.9	57.4	50	18 10	18 42	19 20	17 26	18 45	20 02	21 19		
21	132	59.7		45.6	154 39.1 14.1	S	3	37.0 15.9	57.3	45	18 10	18 39	19 13	17 30	18 43	19 55	21 06		
22	147	59.8		44.6	169 12.2 14.1	N	3	52.9 15.9	57.3	N 40	18 10	18 37	19 08	17 33	18 41	19 49	20 55		
23	163	00.0		43.6	183 45.3 14.1	S	4	08.8 15.9	57.3	35	18 10	18 35	19 05	17 35	18 40	19 43	20 46		
19	00	178	00.2 S	0	42.6	198 18.4 14.1	S	4	24.7 15.8	57.2	30	18 10	18 34	19 02	17 37	18 39	19 39	20 38	
	01	193	00.4		41.7	212 51.5 14.1	S	4	40.5 15.8	57.2	20	18 11	18 32	18 58	17 41	18 37	19 31	20 25	
	02	208	00.6		40.7	227 24.6 14.1	S	4	56.3 15.7	57.2	N 10	18 11	18 32	18 56	17 45	18 35	19 24	20 13	
	03	223	00.8		39.7	241 57.7 14.2	S	5	12.0 15.7	57.2	0	18 11	18 32	18 56	17 48	18 33	19 17	20 02	
	04	238	00.9		38.7	256 30.9 14.1	N	5	27.7 15.7	57.1	S 10	18 12	18 33	18 57	17 51	18 31	19 11	19 51	
	05	253	01.1		37.7	271 04.0 14.1	S	5	43.4 15.6	57.1	20	18 13	18 35	19 00	17 54	18 29	19 04	19 39	
	06	268	01.3 S	0	36.7	285 37.1 14.2	S	5	59.0 15.6	57.1	30	18 14	18 38	19 06	17 58	18 27	18 56	19 26	
	07	283	01.5		35.7	300 10.3 14.1	S	6	14.6 15.5	57.1	35	18 14	18 40	19 09	18 00	18 26	18 52	19 19	
	08	298	01.7		34.7	314 43.4 14.2	S	6	30.1 15.5	57.0	40	18 15	18 42	19 14	18 02	18 24	18 47	19 10	
	09	313	01.9		33.7	329 16.6 14.1	S	6	45.6 15.5	57.0	45	18 16	18 45	19 20	18 05	18 23	18 41	19 00	
10	328	02.0		32.8	343 49.7 14.1	N	7	01.1 15.4	57.0	S 50	18 17	18 49	19 28	18 08	18 21	18 34	18 48		
11	343	02.2		31.8	358 22.8 14.2	S	7	16.5 15.3	56.9	52	18 18	18 51	19 31	18 10	18 20	18 30	18 42		
12	358	02.4 S	0	30.8	12 56.0 14.1	S	7	31.8 15.3	56.9	54	18 18	18 53	19 36	18 11	18 19	18 27	18 36		
13	13	02.6		29.8	27 29.1 14.1	S	7	47.1 15.3	56.9	56	18 19	18 56	19 41	18 13	18 18	18 23	18 29		
14	28	02.8		28.8	42 02.2 14.1	S	8	02.4 15.2	56.9	58	18 20	18 59	19 46	18 15	18 17	18 19	18 21		
15	43	03.0		27.8	56 35.3 14.1	S	8	17.6 15.2	56.8	S 60	18 20	19 02	19 52	18 17	18 16	18 14	18 13		
16	58	03.1		26.8	71 08.4 14.1	N	8	32.8 15.1	56.8	Day	SUN		MOON						
17	73	03.3		25.8	85 41.5 14.1	S	8	47.9 15.0	56.8		Eqn. of Time 00 ^h	Mer. Pass.	Mer. Upper	Pass. Lower	Age	Phase			
18	88	03.5 S	0	24.8	100 14.6 14.1	S	9	02.9 15.0	56.7		12 ^h								
19	103	03.7		23.9	114 47.7 14.1	S	9	17.9 15.0	56.7		m s	m s	h m	h m	h m	d			
20	118	03.9		22.9	129 20.8 14.0	S	9	32.9 14.9	56.7	17	08 34	08 26	12 08	11 37	24 00	29			
21	133	04.1		21.9	143 53.8 14.1	S	9	47.8 14.8	56.7	18	08 17	08 08	12 08	12 22	24 45	00			
22	148	04.3		20.9															
23	163	04.4		19.9															
		S.D. 16.1	<i>d</i>	1.0	S.D. 15.9	15.7	15.5												

		ARIES		VENUS -4.1		MARS +0.1		JUPITER -2.0		SATURN +0.7		STARS										
G.M.T.		G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.							
d	h	°	'	°	°	'	°	'	°	'	°	'		°	'							
T H U R S D A Y	2000	177	20.9	155 15.2	N17	07.5	289	40.5	S20	59.0	355	26.1	N 0 53.4	153	28.2	N 7 31.5	Acamar	315	43.8	S 40	25.8	
	01	192	23.4	170	17.9	07.7	304	42.0		59.1	10	28.9	53.5	168	30.4		31.6	Achernar	335	51.7	S 57	23.7
	02	207	25.8	185	20.7	07.9	319	43.6		59.3	25	31.6	53.7	183	32.6		31.7	Acrux	173	46.5	S 62	55.8
	03	222	28.3	200	23.4	08.1	334	45.1		59.5	40	34.4	53.8	198	34.7		31.8	Adhara	255	38.7	S 28	55.9
	04	237	30.8	215	26.1	08.2	349	46.7		59.7	55	37.2	53.9	213	36.9		31.9	Aldebaran	291	27.9	N 16	27.0
	05	252	33.2	230	28.8	08.4		4 48.2	20	59.8	70	39.9	54.0	228	39.1		32.0					
	06	267	35.7	245	31.6	N17	08.6	19	49.8	S21	00.0	85	42.7	N 0 54.2	243	41.3	N 7 32.2	Alioth	166	49.1	N 56	07.4
	07	282	38.2	260	34.3	08.8	34	51.3	00.2		100	45.4	54.3	258	43.5		32.3	Alkaid	153	24.5	N 49	27.7
	08	297	40.6	275	37.1	08.9	49	52.9	00.3		115	48.2	54.4	273	45.7		32.4	Al Na'ir	28	25.8	S 47	06.7
	09	312	43.1	290	39.8	09.1	64	54.5	00.5		130	51.0	54.6	288	47.9		32.5	Alnilam	276	20.3	S 1	13.2
	10	327	45.6	305	42.6	09.3	79	56.0	00.7		145	53.7	54.7	303	50.0		32.6	Alphard	218	28.7	S 8	31.5
	11	342	48.0	320	45.3	09.4	94	57.6	00.9		160	56.5	54.8	318	52.2		32.7					
	12	357	50.5	335	48.1	N17	09.6	109	59.1	S21	01.0	175	59.2	N 0 55.0	333	54.4	N 7 32.8	Alphecca	126	39.0	N 26	48.7
	13	12	52.9	350	50.8	09.8	125	00.7	01.2		191	02.0	55.1	348	56.6		32.9	Alpheratz	358	18.6	N 28	55.1
	14	27	55.4	5	53.6	09.9	140	02.2	01.4		206	04.8	55.2	3	58.8		33.1	Altair	62	40.9	N 8	46.8
	15	42	57.9	20	56.4	10.1	155	03.8	01.6		221	07.5	55.3	19	01.0		33.2	Ankaa	353	48.8	S 42	28.5
	16	58	00.3	35	59.1	10.2	170	05.3	01.7		236	10.3	55.5	34	03.2		33.3	Antares	113	07.2	S 26	22.0
	17	73	02.8	51	01.9	10.4	185	06.9	01.9		251	13.0	55.6	49	05.3		33.4					
	18	88	05.3	66	04.7	N17	10.5	200	08.5	S21	02.1	266	15.8	N 0 55.7	64	07.5	N 7 33.5	Arcturus	146	25.8	N 19	20.3
	19	103	07.7	81	07.5	10.7	215	10.0	02.2		281	18.6	55.9	79	09.7		33.6	Atria	108	39.0	S 68	58.3
	20	118	10.2	96	10.3	10.8	230	11.6	02.4		296	21.3	56.0	94	11.9		33.7	Avior	234	31.5	S 59	24.7
	21	133	12.7	111	13.1	11.0	245	13.1	02.6		311	24.1	56.1	109	14.1		33.8	Bellatrix	279	07.9	N 6	19.4
	22	148	15.1	126	15.9	11.1	260	14.7	02.8		326	26.8	56.3	124	16.3		34.0	Betelgeuse	271	37.4	N 7	24.2
23	163	17.6	141	18.7	11.2	275	16.3	02.9		341	29.6	56.4	139	18.5		34.1						
F R I D A Y	2100	178	20.1	156	21.5	N17	11.4	290	17.8	S21	03.1	356	32.4	N 0 56.5	154	20.6	N 7 34.2	Canopus	264	10.9	S 52	40.9
	01	193	22.5	171	24.3	11.5	305	19.4	03.3		11	35.1	56.7	169	22.8		34.3	Capella	281	23.9	N 45	58.4
	02	208	25.0	186	27.1	11.6	320	21.0	03.4		26	37.9	56.8	184	25.0		34.4	Deneb	49	54.7	N 45	09.8
	03	223	27.4	201	29.9	11.8	335	22.5	03.6		41	40.7	56.9	199	27.2		34.5	Denebola	183	07.3	N 14	44.5
	04	238	29.9	216	32.7	11.9	350	24.1	03.8		56	43.4	57.0	214	29.4		34.6	Diphda	349	29.6	S 18	09.4
	05	253	32.4	231	35.6	12.0	5	25.7	03.9		71	46.2	57.2	229	31.6		34.7					
	06	268	34.8	246	38.4	N17	12.1	20	27.2	S21	04.1	86	48.9	N 0 57.3	244	33.7	N 7 34.9	Dubhe	194	31.4	N 61	55.1
	07	283	37.3	261	41.2	12.2	35	28.8	04.3		101	51.7	57.4	259	35.9		35.0	El Nath	278	54.9	N 28	35.2
	08	298	39.8	276	44.1	12.4	50	30.4	04.5		116	54.5	57.6	274	38.1		35.1	Eltanin	91	01.7	N 51	29.0
	09	313	42.2	291	46.9	12.5	65	31.9	04.6		131	57.2	57.7	289	40.3		35.2	Enif	34	20.2	N 9	43.7
	10	328	44.7	306	49.7	12.6	80	33.5	04.8		147	00.0	57.8	304	42.5		35.3	Fomalhaut	16	01.0	S 29	47.3
	11	343	47.2	321	52.6	12.7	95	35.1	05.0		162	02.7	57.9	319	44.7		35.4					
	12	358	49.6	336	55.4	N17	12.8	110	36.6	S21	05.1	177	05.5	N 0 58.1	334	46.9	N 7 35.5	Gacrux	172	38.0	S 56	56.5
	13	13	52.1	351	58.3	12.9	125	38.2	05.3		192	08.3	58.2	349	49.0		35.7	Gienah	176	26.4	S 17	22.4
	14	28	54.6	7	01.2	13.0	140	39.8	05.5		207	11.0	58.3	4	51.2		35.8	Hadar	149	35.2	S 60	13.5
	15	43	57.0	22	04.0	13.1	155	41.4	05.6		222	13.8	58.5	19	53.4		35.9	Hamal	328	38.8	N 23	19.1
	16	58	59.5	37	06.9	13.2	170	42.9	05.8		237	16.5	58.6	34	55.6		36.0	Kaus Aust.	84	28.1	S 34	24.1
	17	74	01.9	52	09.8	13.3	185	44.5	06.0		252	19.3	58.7	49	57.8		36.1					
	18	89	04.4	67	12.6	N17	13.4	200	46.1	S21	06.1	267	22.1	N 0 58.9	65	00.0	N 7 36.2	Kochab	137	17.1	N 74	16.5
	19	104	06.9	82	15.5	13.5	215	47.7	06.3		282	24.8	59.0	80	02.1		36.3	Markab	14	12.0	N 15	02.2
	20	119	09.3	97	18.4	13.6	230	49.2	06.5		297	27.6	59.1	95	04.3		36.4	Menkar	314	50.2	N 3	58.2
	21	134	11.8	112	21.3	13.7	245	50.8	06.6		312	30.3	59.2	110	06.5		36.6	Menkent	148	46.8	S 36	13.3
	22	149	14.3	127	24.2	13.8	260	52.4	06.8		327	33.1	59.4	125	08.7		36.7	Miaplacidus	221	46.6	S 69	35.5
23	164	16.7	142	27.1	13.8	275	54.0	07.0		342	35.9	59.5	140	10.9		36.8						
S A T U R D A Y	2200	179	19.2	157	30.0	N17	13.9	290	55.6	S21	07.1	357	38.6	N 0 59.6	155	13.1	N 7 36.9	Mirfak	309	28.7	N 49	45.4
	01	194	21.7	172	32.9	14.0	305	57.1	07.3		12	41.4	59.8	170	15.2		37.0	Nunki	76	39.7	S 26	20.3
	02	209	24.1	187	35.8	14.1	320	58.7	07.5		27	44.2	0 59.9	185	17.4		37.1	Peacock	54	11.9	S 56	50.1
	03	224	26.6	202	38.7	14.1	336	00.3	07.6		42	46.9	1 00.0	200	19.6		37.2	Pollux	244	08.3	N 28	06.3
	04	239	29.1	217	41.6	14.2	351	01.9	07.8		57	49.7	00.2	215	21.8		37.3	Procyon	245	34.5	N 5	18.3
	05	254	31.5	232	44.5	14.3	6	03.5	08.0		72	52.4	00.3	230	24.0		37.5					
	06	269	34.0	247	47.5	N17	14.3	21	05.0	S21	08.1	87	55.2	N 1 00.4	245	26.2	N 7 37.6	Rasalhague	96	37.4	N 12	34.5
	07	284	36.4	262	50.4	14.4	36	06.6	08.3		102	58.0	00.5	260	28.3		37.7	Regulus	208	18.7	N 12	07.1
	08	299	38.9	277	53.3	14.5	51	08.2	08.5		118	00.7	00.7	275	30.5		37.8	Rigel	281	44.2	S 8	14.2
	09	314	41.4	292	56.2	14.5	66	09.8	08.6		133	03.5	00.8	290	32.7		37.9	Rigel Kent.	140	37.1	S 60	42.4
	10	329	43.8	307	59.2	14.6	81	11.4	08.8		148	06.2	00.9	305	34.9		38.0	Sabik	102	50.8	S 15	41.5
	11	344	46.3	323	02.1	14.6	96	13.0	09.0		163	09.0	01.1	320	37.1		38.1					
	12	359	48.8	338	05.1	N17	14.7	111	14.6	S21	09.1	178	11.8	N 1 01.2	335	39.3	N 7 38.3	Schedar	350	19.6	N 56	22.1
	13	14	51.2	353	08.0	14.7	126	16.1	09.3		193	14.5	01.3	350	41.4		38.4	Shaula	97			

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise																	
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.		Naut.	Civil		20	21	22	23														
d	h	°	'	°	'	°	'	°	'	°	<i>h</i>	<i>m</i>	°	<i>h</i>	<i>m</i>	°	<i>h</i>	<i>m</i>	°	<i>h</i>	<i>m</i>									
20	00	178	04.6 S	0	18.9	158	26.9	14.0	N	10	02.6	14.8	56.6	N	72	03	16	04	46	05	54	05	06	03	58					
	01	193	04.8		17.9	172	59.9	14.0		N	10	17.4	14.7	56.6	N	70	03	36	04	54	05	56	05	24	04	40				
	02	208	05.0		16.9	187	32.9	14.0		10	32.1	14.6	56.6	66	04	03	05	06	05	58	05	50	05	30	05	01				
	03	223	05.2		15.9	202	05.9	14.0		10	46.7	14.6	56.6	64	04	13	05	11	05	58	06	00	05	48	05	32	05	03		
	04	238	05.4		15.0	216	38.9	13.9		11	01.3	14.6	56.5	62	04	21	05	15	05	59	06	08	06	02	05	56	05	48		
	05	253	05.5		14.0	231	11.8	14.0		11	15.9	14.4	56.5	60	04	28	05	18	06	00	06	15	06	15	06	15	06	18		
	06	268	05.7 S	0	13.0	245	44.8	13.9	N	11	30.3	14.4	56.5	N	58	04	34	05	21	06	00	06	22	06	25	06	31	06	40	
	07	283	05.9		12.0	260	17.7	13.9		11	44.7	14.4	56.4	56	04	39	05	23	06	00	06	28	06	28	06	35	06	44	06	59
	T 08	298	06.1		11.0	274	50.6	13.9		11	59.1	14.2	56.4	54	04	44	05	25	06	01	06	33	06	43	06	56	07	14		
	H 09	313	06.3		10.0	289	23.5	13.8		12	13.3	14.2	56.4	52	04	48	05	27	06	01	06	38	06	50	07	06	07	28		
U 10	328	06.5		09.0	303	56.3	13.8		12	27.5	14.2	56.4	50	04	51	05	29	06	01	06	42	06	57	07	16	07	40			
R 11	343	06.7		08.0	318	29.1	13.8		12	41.7	14.0	56.3	45	04	58	05	33	06	02	06	51	07	12	07	35	08	05			
SUN	12	358	06.8 S	0	07.1	333	01.9	13.8	N	12	55.7	14.0	56.3	N	40	05	04	05	35	06	02	06	59	07	24	07	52	08	24	
	13	13	07.0		06.1	347	34.7	13.8		13	09.7	13.9	56.3	35	05	08	05	38	06	03	07	06	07	34	08	05	08	41		
	14	28	07.2		05.1	2	07.5	13.7		13	23.6	13.9	56.3	30	05	11	05	39	06	03	07	12	07	43	08	17	08	55		
	15	43	07.4		04.1	16	40.2	13.7		13	37.5	13.7	56.2	20	05	16	05	42	06	04	07	23	07	59	08	38	09	20		
	16	58	07.6		03.1	31	12.9	13.7		13	51.2	13.7	56.2	N	10	05	19	05	43	06	04	07	32	08	13	08	56	09	41	
	17	73	07.8		02.1	45	45.6	13.7		14	04.9	13.7	56.2	0	05	19	05	43	06	04	07	41	08	26	09	13	10	01		
	18	88	08.0 S	0	01.1	60	18.3	13.6	N	14	18.6	13.5	56.1	S	10	05	19	05	43	06	04	07	49	08	39	09	30	10	22	
	19	103	08.1 S	0	00.1	74	50.9	13.6		14	32.1	13.5	56.1	20	05	16	05	42	06	04	07	59	08	53	09	48	10	43		
	20	118	08.3 N	0	00.9	89	23.5	13.5		14	45.6	13.4	56.1	30	05	12	05	40	06	04	08	10	09	09	10	09	11	08		
	21	133	08.5		01.8	103	56.0	13.6		14	59.0	13.3	56.1	35	05	09	05	38	06	04	08	16	09	19	10	22	11	23		
22	148	08.7		02.8	118	28.6	13.4		15	12.3	13.2	56.0	40	05	05	05	36	06	04	08	23	09	30	10	36	11	41			
23	163	08.9		03.8	133	01.0	13.5		15	25.5	13.2	56.0	45	05	00	05	34	06	03	08	32	09	43	10	53	12	01			
21	00	178	09.1 N	0	04.8	147	33.5	13.4	N	15	38.7	13.1	56.0	S	50	04	53	05	31	06	03	08	42	09	59	11	15	12	28	
	01	193	09.3		05.8	162	05.9	13.4		15	51.8	12.9	56.0	52	04	49	05	29	06	03	08	47	10	06	11	25	12	41		
	02	208	09.4		06.8	176	38.3	13.4		16	04.7	13.0	55.9	54	04	45	05	27	06	03	08	52	10	15	11	36	12	56		
	03	223	09.6		07.8	191	10.7	13.3		16	17.7	12.8	55.9	56	04	41	05	25	06	02	08	58	10	24	11	50	13	13		
	04	238	09.8		08.8	205	43.0	13.3		16	30.5	12.7	55.9	58	04	36	05	23	06	02	09	05	10	35	12	05	13	35		
	05	253	10.0		09.7	220	15.3	13.3		16	43.2	12.7	55.9	S	60	04	30	05	20	06	02	09	12	10	47	12	24	14	02	
	06	268	10.2 N	0	10.7	234	47.6	13.2	N	16	55.9	12.5	55.8																	
	07	283	10.4		11.7	249	19.8	13.2		17	08.4	12.5	55.8																	
	08	298	10.6		12.7	263	52.0	13.1		17	20.9	12.4	55.8																	
	F 09	313	10.7		13.7	278	24.1	13.1		17	33.3	12.3	55.7																	
R 10	328	10.9		14.7	292	56.2	13.1		17	45.6	12.2	55.7																		
I 11	343	11.1		15.7	307	28.3	13.0		17	57.8	12.1	55.7																		
D 12	358	11.3 N	0	16.7	322	00.3	13.0	N	18	09.9	12.1	55.7	N	72	18	23	19	32	21	03	24	06	00	06						
	A 13	13	11.5		17.6	336	32.3	12.9		18	22.0	11.9	55.7	N	70	18	21	19	23	20	43	23	25							
	Y 14	28	11.7		18.6	351	04.2	12.9		18	33.9	11.8	55.6	66	18	19	19	10	20	14	22	38	24	44	00	44				
	15	43	11.9		19.6	5	36.1	12.9		18	45.7	11.8	55.6	64	18	18	19	06	20	04	22	22	24	14	00	14	02	23		
	16	58	12.0		20.6	20	08.0	12.8		18	57.5	11.6	55.6	62	18	17	19	02	19	56	22	08	23	51	25	39	01	39		
	17	73	12.2		21.6	34	39.8	12.8		19	09.1	11.6	55.6	60	18	16	18	58	19	49	21	57	23	33	25	10	01	10		
	18	88	12.4 N	0	22.6	49	11.6	12.7	N	19	20.7	11.4	55.5	N	58	18	16	18	55	19	42	21	48	23	18	24	48	00	48	
	19	103	12.6		23.6	63	43.3	12.7		19	32.1	11.4	55.5	56	18	15	18	53	19	37	21	39	23	05	24	30	00	30		
	20	118	12.8		24.6	78	15.0	12.6		19	43.5	11.3	55.5	54	18	15	18	50	19	32	21	32	22	54	24	15	00	15		
	21	133	13.0		25.5	92	46.6	12.7		19	54.8	11.1	55.5	52	18	15	18	48	19	28	21	25	22	44	24	02	00	02		
22	148	13.2		26.5	107	18.3	12.5		20	05.9	11.1	55.4	50	18	14	18	46	19	25	21	19	22	35	23	50	25	01			
23	163	13.4		27.5	121	49.8	12.5		20	17.0	10.9	55.4	45	18	13	18	43	19	17	21	06	22	17	23	26	24	33			
22	00	178	13.5 N	0	28.5	136	21.3	12.5	N	20	27.9	10.9																		

	ARIES	VENUS -4.0	MARS 0.0	JUPITER -2.0	SATURN +0.7	STARS	
G.M.T.	G.H.A.	G.H.A. Dec.	G.H.A. Dec.	G.H.A. Dec.	G.H.A. Dec.	Name S.H.A. Dec.	
d h	° ' "	° ' " ° ' "	° ' " ° ' "	° ' " ° ' "	° ' " ° ' "	° ' " ° ' "	
SUNDAY	23 00	180 18.3	158 40.7 N 17 15.1	291 33.6 S 21 11.1	358 44.9 N 1 02.8	156 05.4 N 7 39.6	Acamar 315 43.8 S 40 25.8
	01	195 20.8	173 43.7 15.1	306 35.2 11.3	13 47.7 02.9	171 07.6 39.7	Achernar 335 51.8 S 57 23.6
	02	210 23.3	188 46.7 15.1	321 36.8 11.5	28 50.4 03.0	186 09.8 39.8	Acrux 173 46.5 S 62 55.8
	03	225 25.7	203 49.7 15.2	336 38.4 11.6	43 53.2 03.1	201 12.0 39.9	Adhara 255 38.7 S 28 55.9
	04	240 28.2	218 52.7 15.2	351 40.0 11.8	58 55.9 03.3	216 14.2 40.1	Aldebaran 291 27.9 N 16 27.0
	05	255 30.6	233 55.7 15.2	6 41.6 11.9	73 58.7 03.4	231 16.4 40.2	
	06	270 33.1	248 58.7 N 17 15.2	21 43.2 S 21 12.1	89 01.5 N 1 03.5	246 18.5 N 7 40.3	Alioth 166 49.0 N 56 07.4
	07	285 35.6	264 01.7 15.2	36 44.8 12.3	104 04.2 03.7	261 20.7 40.4	Alkaid 153 24.5 N 49 27.7
	08	300 38.0	279 04.8 15.2	51 46.4 12.4	119 07.0 03.8	276 22.9 40.5	Al Na'ir 28 25.7 S 47 06.7
	09	315 40.5	294 07.8 15.2	66 48.0 12.6	134 09.7 03.9	291 25.1 40.6	Alnilam 276 20.3 S 1 13.2
	10	330 43.0	309 10.8 15.2	81 49.6 12.8	149 12.5 04.0	306 27.3 40.7	Alphard 218 28.7 S 8 31.5
	11	345 45.4	324 13.9 15.2	96 51.2 12.9	164 15.3 04.2	321 29.4 40.9	
	12	0 47.9	339 16.9 N 17 15.2	111 52.8 S 21 13.1	179 18.0 N 1 04.3	336 31.6 N 7 41.0	Alphecca 126 39.0 N 26 48.7
	13	15 50.4	354 19.9 15.2	126 54.4 13.3	194 20.8 04.4	351 33.8 41.1	Alpheratz 358 18.6 N 28 55.1
	14	30 52.8	9 23.0 15.1	141 56.0 13.4	209 23.5 04.6	6 36.0 41.2	Altair 62 40.9 N 8 46.8
	15	45 55.3	24 26.0 15.1	156 57.7 13.6	224 26.3 04.7	21 38.2 41.3	Ankaa 353 48.8 S 42 28.4
	16	60 57.8	39 29.1 15.1	171 59.3 13.7	239 29.1 04.8	36 40.4 41.4	Antares 113 07.1 S 26 22.0
	17	76 00.2	54 32.1 15.1	187 00.9 13.9	254 31.8 05.0	51 42.5 41.5	
	18	91 02.7	69 35.2 N 17 15.1	202 02.5 S 21 14.1	269 34.6 N 1 05.1	66 44.7 N 7 41.6	Arcturus 146 25.8 N 19 20.3
	19	106 05.1	84 38.3 15.0	217 04.1 14.2	284 37.4 05.2	81 46.9 41.8	Atria 108 39.0 S 68 58.3
	20	121 07.6	99 41.3 15.0	232 05.7 14.4	299 40.1 05.3	96 49.1 41.9	Avior 234 31.6 S 59 24.7
	21	136 10.1	114 44.4 15.0	247 07.3 14.6	314 42.9 05.5	111 51.3 42.0	Bellatrix 279 07.9 N 6 19.4
	22	151 12.5	129 47.5 15.0	262 08.9 14.7	329 45.6 05.6	126 53.4 42.1	Betelgeuse 271 37.5 N 7 24.2
	23	166 15.0	144 50.5 14.9	277 10.5 14.9	344 48.4 05.7	141 55.6 42.2	
MONDAY	24 00	181 17.5	159 53.6 N 17 14.9	292 12.1 S 21 15.0	359 51.2 N 1 05.9	156 57.8 N 7 42.3	Canopus 264 11.0 S 52 40.9
	01	196 19.9	174 56.7 14.8	307 13.7 15.2	14 53.9 06.0	172 00.0 42.4	Capella 281 23.9 N 45 58.4
	02	211 22.4	189 59.8 14.8	322 15.3 15.4	29 56.7 06.1	187 02.2 42.6	Deneb 49 54.6 N 45 09.8
	03	226 24.9	205 02.9 14.8	337 17.0 15.5	44 59.4 06.2	202 04.3 42.7	Denebola 183 07.3 N 14 44.5
	04	241 27.3	220 06.0 14.7	352 18.6 15.7	60 02.2 06.4	217 06.5 42.8	Diphda 349 29.6 S 18 09.4
	05	256 29.8	235 09.1 14.7	7 20.2 15.8	75 05.0 06.5	232 08.7 42.9	
	06	271 32.3	250 12.2 N 17 14.6	22 21.8 S 21 16.0	90 07.7 N 1 06.6	247 10.9 N 7 43.0	Dubhe 194 31.5 N 61 55.1
	07	286 34.7	265 15.3 14.6	37 23.4 16.2	105 10.5 06.8	262 13.1 43.1	Elnath 278 54.9 N 28 35.2
	08	301 37.2	280 18.4 14.5	52 25.0 16.3	120 13.2 06.9	277 15.2 43.2	Eltanin 91 01.6 N 51 29.0
	09	316 39.6	295 21.5 14.4	67 26.7 16.5	135 16.0 07.0	292 17.4 43.4	Enif 34 20.2 N 9 43.7
	10	331 42.1	310 24.7 14.4	82 28.3 16.7	150 18.8 07.1	307 19.6 43.5	Fomalhaut 16 00.9 S 29 47.3
	11	346 44.6	325 27.8 14.3	97 29.9 16.8	165 21.5 07.3	322 21.8 43.6	
	12	1 47.0	340 30.9 N 17 14.2	112 31.5 S 21 17.0	180 24.3 N 1 07.4	337 24.0 N 7 43.7	Gacrux 172 38.0 S 56 56.5
	13	16 49.5	355 34.0 14.2	127 33.1 17.1	195 27.0 07.5	352 26.1 43.8	Gienah 176 26.4 S 17 22.4
	14	31 52.0	10 37.2 14.1	142 34.8 17.3	210 29.8 07.7	7 28.3 43.9	Hadar 149 35.2 S 60 13.5
	15	46 54.4	25 40.3 14.0	157 36.4 17.5	225 32.6 07.8	22 30.5 44.0	Hamal 328 38.8 N 23 19.1
	16	61 56.9	40 43.5 13.9	172 38.0 17.6	240 35.3 07.9	37 32.7 44.1	Kaus Aust. 84 28.1 S 34 24.1
	17	76 59.4	55 46.6 13.9	187 39.6 17.8	255 38.1 08.1	52 34.9 44.3	
	18	92 01.8	70 49.8 N 17 13.8	202 41.2 S 21 17.9	270 40.8 N 1 08.2	67 37.0 N 7 44.4	Kochab 137 17.1 N 74 16.5
	19	107 04.3	85 52.9 13.7	217 42.9 18.1	285 43.6 08.3	82 39.2 44.5	Markab 14 12.0 N 15 02.2
	20	122 06.8	100 56.1 13.6	232 44.5 18.3	300 46.4 08.4	97 41.4 44.6	Menkar 314 50.2 N 3 58.2
	21	137 09.2	115 59.2 13.5	247 46.1 18.4	315 49.1 08.6	112 43.6 44.7	Menkent 148 46.8 S 36 13.3
	22	152 11.7	131 02.4 13.4	262 47.7 18.6	330 51.9 08.7	127 45.8 44.8	Miaplacidus 221 46.6 S 69 35.5
	23	167 14.1	146 05.6 13.3	277 49.4 18.7	345 54.6 08.8	142 47.9 44.9	
TUESDAY	25 00	182 16.6	161 08.7 N 17 13.2	292 51.0 S 21 18.9	0 57.4 N 1 09.0	157 50.1 N 7 45.1	Mirfak 309 28.7 N 49 45.4
	01	197 19.1	176 11.9 13.1	307 52.6 19.0	16 00.2 09.1	172 52.3 45.2	Nunki 76 39.7 S 26 20.3
	02	212 21.5	191 15.1 13.0	322 54.3 19.2	31 02.9 09.2	187 54.5 45.3	Peacock 54 11.8 S 56 50.1
	03	227 24.0	206 18.3 12.9	337 55.9 19.4	46 05.7 09.3	202 56.7 45.4	Pollux 244 08.3 N 28 06.3
	04	242 26.5	221 21.5 12.8	352 57.5 19.5	61 08.4 09.5	217 58.8 45.5	Procyon 245 34.5 N 5 18.3
	05	257 28.9	236 24.6 12.7	7 59.2 19.7	76 11.2 09.6	233 01.0 45.6	
	06	272 31.4	251 27.8 N 17 12.6	23 00.8 S 21 19.8	91 14.0 N 1 09.7	248 03.2 N 7 45.7	Rasalhague 96 37.4 N 12 34.5
	07	287 33.9	266 31.0 12.5	38 02.4 20.0	106 16.7 09.9	263 05.4 45.8	Regulus 208 18.7 N 12 07.1
	08	302 36.3	281 34.2 12.4	53 04.1 20.2	121 19.5 10.0	278 07.6 46.0	Rigel 281 44.2 S 8 14.2
	09	317 38.8	296 37.4 12.2	68 05.7 20.3	136 22.2 10.1	293 09.7 46.1	Rigel Kent. 140 37.1 S 60 42.4
	10	332 41.3	311 40.7 12.1	83 07.3 20.5	151 25.0 10.2	308 11.9 46.2	Sabik 102 50.8 S 15 41.5
	11	347 43.7	326 43.9 12.0	98 09.0 20.6	166 27.8 10.4	323 14.1 46.3	
	12	2 46.2	341 47.1 N 17 11.9	113 10.6 S 21 20.8	181 30.5 N 1 10.5	338 16.3 N 7 46.4	Schedar 350 19.6 N 56 22.1
	13	17 48.6	356 50.3 11.7	128 12.2 20.9	196 33.3 10.6	353 18.5 46.5	Shaula 97 07.2 S 37 05.0
	14	32 51.1	11 53.5 11.6	143 13.9 21.1	211 36.0 10.8	8 20.6 46.6	Sirius 259 03.1 S 16 40.4
	15	47 53.6	26 56.7 11.5	158 15.5 21.3	226 38.8 10.9	23 22.8 46.8	Spica 159 06.2 S 11 00.2
	16	62 56.0	42 00.0 11.3	173 17.1 21.4	241 41.6 11.0	38 25.0 46.9	Suhail 223 16.9 S 43 18.6
	17	77 58.5	57 03.2 11.2	188 18.8 21.6	256 44.3 11.1	53 27.2 47.0	
	18	93 01.0	72 06.5 N 17 11.0	203 20.4 S 21 21.7	271 47.1 N 1 11.3	68 29.4 N 7 47.1	Vega 81 01.6 N 38 44.8
	19	108 03.4	87 09.7 10.9	218 22.1 21.9	286 49.8 11.4	83 31.5 47.2	Zuben'ubi 137 42.2 S 15 55.1
	20	123 05.9	102 12.9 10.7	233 23.7 22.0	301 52.6 11.5	98 33.7 47.3	
	21	138 08.4	117 16.2 10.6	248 25.4 22.2	316 55.4 11.6	113 35.9 47.4	
	22	153 10.8	132 19.4 10.4	263 27.0 22.3	331 58.1 11.8	128 38.1 47.6	Venus 338 36.1 13 18
	23	168 13.3	147 22.7 10.3	278 28.6 22.5	347 00.9 11.9	143 40.2 47.7	Mars 110 54.6 4 31
Mer. Pass. 11 52.9 v 3.1 d 0.1 v 1.6 d 0.2 v 2.8 d 0.1 v 2.2 d 0.1							
Jupiter 178 33.7 (20 01)							
Saturn 335 40.3 13 30							

G.M.T.	SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise				
	G.M.A.	Dec.	G.M.A.	h	Dec.	d		m	Naut.		Civil	23	24	25	26
23 00	178 18-0	N 0 52-2	124 44-5	11-3	24 18-9	8-2	14-9	N 70	02 55	04 30	05 39				
01	193 18-2	53-2	129 44-5	11-3	24 27-1	8-4	14-9	N 70	03 18	04 40	05 42				
02	208 18-4	54-2	153 44-6	11-3	24 35-7	8-5	14-8	N 70	03 36	04 54	05 46				
03	223 18-6	55-2	168 14-9	11-3	24 43-1	8-5	14-8	N 70	03 50	05 04	05 48				
04	238 18-8	56-1	182 44-2	11-1	24 51-0	7-9	14-8	N 70	04 10	05 25	05 49				
05	253 19-0	57-1	197 15-3	11-2	24 58-7	7-6	14-8	N 70	04 18	05 39	05 56				
06	268 19-2	N 0 58-1	211 45-5	11-1	25 06-3	7-5	14-8	N 58	04 25	05 12	05 51				
07	283 19-4	0 59-1	226 15-6	11-0	25 13-8	7-3	14-8	N 58	04 31	05 19	05 52				
08	298 19-6	1 00-1	240 45-6	11-1	25 21-1	7-3	14-7	N 58	04 36	05 18	05 53				
09	313 19-7	1 01-1	255 15-7	10-9	25 28-4	7-1	14-7	N 58	04 40	05 24	05 54				
10	328 19-9	1 02-1	269 45-6	11-0	25 35-5	7-0	14-7	N 50	04 44	05 23	05 55				
11	343 20-1	1 03-0	284 15-6	10-8	25 42-5	6-8	14-7	N 48	04 53	05 27	05 56				
12	358 20-3	N 1 04-0	298 45-4	10-8	25 49-3	6-7	14-7	N 40	04 59	05 31	05 57				
13	373 20-5	1 05-0	313 15-3	10-8	25 56-5	6-7	14-7	N 35	05 04	05 33	05 59				
14	388 20-7	1 06-0	327 45-1	10-8	26 02-7	6-4	14-6	N 30	05 08	05 35	06 00				
15	403 20-9	1 07-0	342 14-9	10-7	26 09-1	6-4	14-6	N 20	05 13	05 39	06 01				
16	418 21-1	1 08-0	356 44-6	10-7	26 15-5	6-2	14-6	N 10	05 17	05 41	06 02				
17	433 21-2	1 09-0	11 14-3	10-6	26 21-7	6-1	14-6	0	05 18	05 42	06 03				
18	448 21-4	N 1 09-9	25 43-9	10-6	26 27-8	6-0	14-6	S 10	05 19	05 43	06 04				
19	463 21-6	1 10-9	40 13-5	10-6	26 33-8	5-8	14-6	20	05 17	05 43	06 05				
20	478 21-8	1 11-9	54 43-1	10-5	26 39-6	5-7	14-6	30	05 14	05 42	06 06				
21	493 22-0	1 12-9	69 12-6	10-5	26 45-3	5-6	14-6	35	05 12	05 41	06 06				
22	508 22-2	1 13-9	83 42-1	10-5	26 50-9	5-5	14-6	40	05 08	05 39	06 07				
23	523 22-4	1 14-9	98 11-6	10-4	26 56-4	5-3	14-6	45	05 04	05 38	06 07				
24 00	178 22-6	N 1 15-8	112 41-0	10-4	27 01-7	5-2	14-5	S 5	04 58	05 35	06 06				
01	193 22-8	1 16-8	127 10-4	10-4	27 06-9	5-1	14-5	52	04 55	05 34	06 08				
02	208 22-9	1 17-8	141 39-6	10-3	27 11-9	5-1	14-5	54	04 51	05 33	06 08				
03	223 23-1	1 18-8	156 09-1	10-3	27 16-9	4-8	14-5	56	04 48	05 31	06 09				
04	238 23-3	1 19-8	170 38-4	10-2	27 21-7	4-6	14-5	58	04 43	05 30	06 09				
05	253 23-5	2 00-8	185 07-6	10-3	27 26-3	4-5	14-4	S 60	04 38	05 28	06 09				
06	268 23-7	N 1 21-6	199 36-9	10-2	27 30-6	4-4	14-4								
07	283 23-9	2 22-7	214 06-1	10-1	27 35-2	4-3	14-4								
08	298 24-1	2 23-7	228 35-2	10-2	27 39-5	4-1	14-4								
09	313 24-3	2 24-7	243 04-4	10-1	27 43-6	4-0	14-4								
10	328 24-5	2 25-7	257 33-5	10-1	27 47-6	3-9	14-4								
11	343 24-6	2 26-7	272 02-6	10-1	27 51-5	3-7	14-4								
12	358 24-8	N 1 27-7	286 31-7	10-0	27 55-2	3-5	14-4	N 70	18 33	19 36	20 59				
13	373 25-0	2 28-4	301 50-7	9-5	27 58-7	3-5	14-4	N 70	18 31	19 27	20 42				
14	388 25-2	2 29-6	315 29-7	9-5	28 02-2	3-3	14-4	N 70	18 29	19 21	20 26				
15	403 25-4	3 00-6	329 58-7	9-5	28 05-5	3-2	14-3	N 70	18 27	19 15	20 15				
16	418 25-6	3 11-6	344 27-7	9-5	28 08-7	3-0	14-3	N 70	18 25	19 10	20 05				
17	433 25-8	3 22-6	358 56-6	9-5	28 11-7	2-9	14-3	N 70	18 24	19 06	19 57				
18	448 26-0	N 1 33-6	373 25-6	9-4	28 14-6	2-8	14-3	N 58	18 23	19 02	19 56				
19	463 26-2	3 44-6	387 54-5	9-4	28 17-4	2-6	14-3	N 58	18 22	18 59	19 44				
20	478 26-4	3 55-6	402 23-4	9-4	28 20-5	2-5	14-3	N 58	18 21	18 56	19 39				
21	493 26-6	3 06-6	416 52-2	9-4	28 23-5	2-3	14-3	N 58	18 20	18 54	19 34				
22	508 26-7	3 17-5	431 21-1	9-4	28 26-6	2-2	14-3	N 58	18 19	18 51	19 30				
23	523 26-9	3 28-5	445 49-9	9-4	28 29-5	2-1	14-3	N 45	18 17	18 47	19 21				
24 00	178 27-1	N 1 39-5	100 18-4	9-8	28 29-1	1-9	14-3	N 40	18 16	18 43	19 15				
01	193 27-3	4 00-5	114 47-4	9-8	28 31-0	1-8	14-3	N 40	18 15	18 40	19 10				
02	208 27-5	4 11-4	129 16-4	9-8	28 32-8	1-7	14-3	N 40	18 14	18 38	19 06				
03	223 27-7	4 22-4	143 45-2	9-8	28 34-5	1-5	14-3	N 40	18 12	18 34	19 00				
04	238 27-9	4 33-4	158 14-5	9-7	28 36-0	1-4	14-3	N 10	18 11	18 32	18 56				
05	253 28-1	4 44-4	172 42-7	9-8	28 37-4	1-2	14-3	0	18 10	18 30	18 54				
06	268 28-3	N 1 45-4	187 11-5	9-8	28 38-7	1-1	14-3	S 10	18 09	18 30	18 54				
07	283 28-4	4 56-4	201 40-3	9-7	28 39-6	1-1	14-2	20	18 08	18 30	18 55				
08	298 28-6	4 67-3	216 09-0	9-8	28 40-7	9-8	14-2	30	18 07	18 30	18 58				
09	313 28-8	4 78-3	230 37-8	9-7	28 41-5	9-7	14-2	35	18 06	18 31	19 01				
10	328 29-0	4 89-3	245 66-5	9-8	28 42-2	9-5	14-2	40	18 06	18 32	19 04				
11	343 29-2	5 00-3	259 35-3	9-7	28 42-7	9-4	14-2	45	18 05	18 34	19 08				
12	358 29-4	N 1 51-3	274 04-0	9-7	28 43-1	9-3	14-2	S 50	18 04	18 36	19 14				
13	373 29-6	5 23-3	288 32-7	9-8	28 43-4	9-1	14-2	52	18 04	18 37	19 17				
14	388 29-8	5 34-2	303 01-5	9-7	28 43-5	9-0	14-2	54	18 03	18 39	19 20				
15	403 30-0	5 45-2	317 30-2	9-8	28 43-5	9-1	14-2	56	18 03	18 40	19 24				
16	418 30-2	5 56-1	331 59-0	9-7	28 43-4	9-0	14-2	58	18 03	18 42	19 28				
17	433 30-3	5 66-2	346 27-7	9-8	28 43-1	9-5	14-2	S 60	18 02	18 44	19 33				
18	448 30-5	N 1 57-2	360 56-5	9-7	28 42-6	9-5	14-2								
19	463 30-7	5 88-1	375 25-2	9-8	28 42-1	9-8	14-2								
20	478 30-9	1 59-1	389 54-0	9-8	28 41-3	9-8	14-2								
21	493 31-1	2 10-1	404 22-6	9-8	28 40-5	1-0	14-2								
22	508 31-3	2 21-1	418 51-6	9-7	28 39-5	1-1	14-2								
23	523 31-5	2 32-1	433 20-3	9-9	28 38-4	1-3	14-2								
	S.D. 16-1	d 1-0	S.D. 14-9	14-8	14-8	14-8									
										</					

G.M.T.	ARIES			VENUS -3.8			MARS 0.0			JUPITER -2.0			SATURN +0.7			STARS		
	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "		° ' "	° ' "
26 00	183 15.8	162 26.0	N 17 10.1	293 30.3	S 21 22.7		2 03.6	N 1 12.0	158 42.4	N 7 47.8			158 42.4	N 7 47.8		Acamar	315 43.8	S 40 25.8
01	198 18.2	177 29.2	09.9	308 31.9	22.8		17 06.4	12.2	173 44.6	47.9			173 44.6	47.9		Achernar	335 51.8	S 57 23.6
02	213 20.7	192 32.5	09.8	323 33.6	23.0		32 09.2	12.3	188 46.8	48.0			188 46.8	48.0		Acrux	173 46.4	S 62 55.8
03	228 23.1	207 35.7	09.6	338 35.2	23.1		47 11.9	12.4	203 49.0	48.1			203 49.0	48.1		Adhara	255 38.7	S 62 55.9
04	243 25.6	222 39.0	09.4	353 36.9	23.3		62 14.7	12.5	218 51.1	48.2			218 51.1	48.2		Aldebaran	291 27.9	N 16 27.0
05	258 28.1	237 42.3	09.3	8 38.5	23.4		77 17.4	12.7	233 53.3	48.4			233 53.3	48.4				
06	273 30.5	252 45.6	N 17 09.1	23 40.2	S 21 23.6		92 20.2	N 1 12.8	248 55.5	N 7 48.5			248 55.5	N 7 48.5		Alioth	166 49.0	N 56 07.5
07	288 33.0	267 48.9	08.9	38 41.8	23.7		107 23.0	12.9	263 57.7	48.6			263 57.7	48.6		Alkaid	153 24.4	N 49 27.7
08	303 35.5	282 52.1	08.7	53 43.5	23.9		122 25.7	13.1	278 59.9	48.7			278 59.9	48.7		Al Na'ir	28 25.7	S 47 06.7
09	318 37.9	297 55.4	08.6	68 45.1	24.1		137 28.5	13.2	294 02.0	48.8			294 02.0	48.8		Anilim	276 20.3	S 1 13.2
10	333 40.4	312 58.7	08.4	83 46.8	24.2		152 31.2	13.3	309 04.2	48.9			309 04.2	48.9		Alphard	218 28.7	S 8 31.5
11	348 42.9	328 02.0	08.2	98 48.4	24.4		167 34.0	13.4	324 06.4	49.0			324 06.4	49.0				
12	3 45.3	343 05.3	N 17 08.0	113 50.1	S 21 24.5		182 36.8	N 1 13.6	339 08.6	N 7 49.2			339 08.6	N 7 49.2		Alphecca	126 39.0	N 26 48.7
13	18 47.8	358 08.6	07.8	128 51.7	24.7		197 39.5	13.7	354 10.7	49.3			354 10.7	49.3		Alpheratz	358 18.6	N 28 55.1
14	33 50.2	13 11.9	07.6	143 53.4	24.8		212 42.3	13.8	9 12.9	49.4			9 12.9	49.4		Altair	62 40.9	N 8 46.8
15	48 52.7	28 15.3	07.4	158 55.1	25.0		227 45.0	13.9	24 15.1	49.5			24 15.1	49.5		Ankaa	353 48.8	S 42 28.4
16	63 55.2	43 18.6	07.2	173 56.7	25.1		242 47.8	14.1	39 17.3	49.6			39 17.3	49.6		Antares	113 07.1	S 26 22.1
17	78 57.6	58 21.9	07.0	188 58.4	25.3		257 50.5	14.2	54 19.5	49.7			54 19.5	49.7				
18	94 00.1	73 25.2	N 17 06.8	204 00.0	S 21 25.4		272 53.3	N 1 14.3	69 21.6	N 7 49.8			69 21.6	N 7 49.8		Arcturus	146 25.8	N 19 20.3
19	109 02.6	88 28.5	06.6	219 01.7	25.6		287 56.1	14.5	84 23.8	50.0			84 23.8	50.0		Atria	108 38.9	S 68 58.3
20	124 05.0	103 31.9	06.4	234 03.4	25.8		302 58.8	14.6	99 26.0	50.1			99 26.0	50.1		Avior	234 31.6	S 59 24.8
21	139 07.5	118 35.2	06.2	249 05.0	25.9		318 01.6	14.7	114 28.2	50.2			114 28.2	50.2		Bellatrix	279 07.9	N 6 19.4
22	154 10.0	133 38.5	05.9	264 06.7	26.1		333 04.3	14.8	129 30.3	50.3			129 30.3	50.3		Betelgeuse	271 37.5	N 7 24.2
23	169 12.4	148 41.9	05.7	279 08.3	26.2		348 07.1	15.0	144 32.5	50.4			144 32.5	50.4				
27 00	184 14.9	163 45.2	N 17 05.5	294 10.0	S 21 26.4		3 09.9	N 1 15.1	159 34.7	N 7 50.5			159 34.7	N 7 50.5		Canopus	264 11.0	S 52 40.9
01	199 17.4	178 48.6	05.3	309 11.7	26.5		18 12.6	15.2	174 36.9	50.6			174 36.9	50.6		Capella	281 24.0	N 45 58.4
02	214 19.8	193 51.9	05.0	324 13.3	26.7		33 15.4	15.3	189 39.0	50.7			189 39.0	50.7		Deneb	49 54.6	N 45 09.8
03	229 22.3	208 55.3	04.8	339 15.0	26.8		48 18.1	15.5	204 41.2	50.9			204 41.2	50.9		Denebola	183 07.3	N 14 44.5
04	244 24.7	223 58.6	04.6	354 16.7	27.0		63 20.9	15.6	219 43.4	51.0			219 43.4	51.0		Diphda	349 29.6	S 18 09.4
05	259 27.2	239 02.0	04.3	9 18.3	27.1		78 23.7	15.7	234 45.6	51.1			234 45.6	51.1				
06	274 29.7	254 05.3	N 17 04.1	24 20.0	S 21 27.3		93 26.4	N 1 15.9	249 47.8	N 7 51.2			249 47.8	N 7 51.2		Dubhe	194 31.5	N 61 55.1
07	289 32.1	269 08.7	03.9	39 21.7	27.4		108 29.2	16.0	264 49.9	51.3			264 49.9	51.3		Elath	278 54.9	N 28 35.2
08	304 34.6	284 12.1	03.6	54 23.3	27.6		123 31.9	16.1	279 52.1	51.4			279 52.1	51.4		Eltanin	91 01.6	N 51 29.0
09	319 37.1	299 15.4	03.4	69 25.0	27.7		138 34.7	16.2	294 54.3	51.5			294 54.3	51.5		Enif	34 20.1	N 9 43.7
10	334 39.5	314 18.8	03.1	84 26.7	27.9		153 37.5	16.4	309 56.5	51.7			309 56.5	51.7		Fomalhaut	16 00.9	S 29 47.2
11	349 42.0	329 22.2	02.9	99 28.3	28.1		168 40.2	16.5	324 58.6	51.8			324 58.6	51.8				
12	4 44.5	344 25.6	N 17 02.6	114 30.0	S 21 28.2		183 43.0	N 1 16.6	340 00.8	N 7 51.9			340 00.8	N 7 51.9		Gacrux	172 38.0	S 56 56.5
13	19 46.9	359 29.0	02.4	129 31.7	28.4		198 45.7	16.7	355 03.0	52.0			355 03.0	52.0		Gienah	176 26.4	S 17 22.4
14	34 49.4	14 32.4	02.1	144 33.4	28.5		213 48.5	16.9	10 05.2	52.1			10 05.2	52.1		Hadar	149 35.1	S 60 13.6
15	49 51.9	29 35.7	01.8	159 35.0	28.7		228 51.2	17.0	25 07.4	52.2			25 07.4	52.2		Hamal	328 38.8	N 23 19.1
16	64 54.3	44 39.1	01.6	174 36.7	28.8		243 54.0	17.1	40 09.5	52.3			40 09.5	52.3		Kaus Aust.	84 28.0	S 34 24.1
17	79 56.8	59 42.5	01.3	189 38.4	29.0		258 56.8	17.3	55 11.7	52.5			55 11.7	52.5				
18	94 59.2	74 45.9	N 17 01.0	204 40.1	S 21 29.1		273 59.5	N 1 17.4	70 13.9	N 7 52.6			70 13.9	N 7 52.6		Kochab	137 17.0	N 74 16.6
19	110 01.7	89 49.4	00.8	219 41.7	29.3		289 02.3	17.5	85 16.1	52.7			85 16.1	52.7		Markab	14 12.0	N 15 02.2
20	125 04.2	104 52.8	00.5	234 43.4	29.4		304 05.0	17.6	100 18.2	52.8			100 18.2	52.8		Menkar	314 50.2	N 3 58.2
21	140 06.6	119 56.2	17 00.2	249 45.1	29.6		319 07.8	17.8	115 20.4	52.9			115 20.4	52.9		Menkent	148 46.8	S 36 13.3
22	155 09.1	134 59.6	16 59.9	264 46.8	29.7		334 10.5	17.9	130 22.6	53.0			130 22.6	53.0		Miaplacidus	221 46.7	S 69 35.5
23	170 11.6	150 03.0	59.6	279 48.4	29.9		349 13.3	18.0	145 24.8	53.1			145 24.8	53.1				
28 00	185 14.0	165 06.4	N 16 59.4	294 50.1	S 21 30.0		4 16.1	N 1 18.1	160 26.9	N 7 53.3			160 26.9	N 7 53.3		Mirfak	309 28.7	N 49 45.4
01	200 16.5	180 09.9	59.1	309 51.8	30.2		19 18.8	18.3	175 29.1	53.4			175 29.1	53.4		Nunki	76 39.7	S 26 20.3
02	215 19.0	195 13.3	58.8	324 53.5	30.3		34 21.6	18.4	190 31.3	53.5			190 31.3	53.5		Pecock	54 11.8	S 56 50.1
03	230 21.4	210 16.7	58.5	339 55.2	30.5		49 24.3	18.5	205 33.5	53.6			205 33.5	53.6		Pollux	244 08.3	N 28 06.3
04	245 23.9	225 20.2	58.2	354 56.9	30.6		64 27.1	18.6	220 35.6	53.7			220 35.6	53.7		Procyon	245 34.5	N 5 18.3
05	260 26.4	240 23.6	57.9	9 58.5	30.8		79 29.8	18.8	235 37.8	53.8			235 37.8	53.8				
06	275 28.8	255 27.0	N 16 57.6	25 00.2	S 21 30.9		94 32.6	N 1 18.9	250 40.0	N 7 53.9			250 40.0	N 7 53.9		Rasalhague	96 37.4	N 12 34.5
07	290 31.3	270 30.5	57.3	40 01.9	31.1		109 35.4	19.0	265 42.2	54.1			265 42.2	54.1		Regulus	208 18.7	N 12 07.1
08	305 33.7	285 33.9	57.0	55 03.6	31.2		124 38.1	19.2	280 44.4	54.2			280 44.4	54.2		Rigel	281 44.2	S 8 14.2
09	320 36.2	300 37.4	56.7	70 05.3	31.4		139 40.9	19.3	295 46.5	54.3			295 46.5	54.3		Rigel Kent.	140 37.1	S 60 42.5
10	335 38.7	315 40.8	56.3	85 07.0	31.5		154 43.6	19.4	310 48.7	54.4			310 48.7	54.4		Sabik	102 50.7	S 15 41.5
11	350 41.1	330 44.3	56.0	100 08.7	31.7		169 46.4	19.5	325 50.9	54.5			325 50.9	54.5				
12	5 43.6	345 47.7	N 16 55.7	115 10.4	S 21 31.8		184 49.1	N 1 19.7	340 53.1	N 7 54.6			340 53.1	N 7 54.6		Schedar	350 19.6	N 56 22.1
13	20 46.1	0 51.2	55.4	130 12.0	32.0		199 51.9	19.8	355 55.2	54.7			355 55.2	54.7		Shaula	97 07.2	S 37 05.0
14	35 48.5	15 54.7	55.1	145 13.7	32.1		214 54.7	19.9	10 57.4	54.9			10 57.4	54.9		Sirius	259 03.2	S 16 40.4
15	50 51.0	30 58.1	54.7	160 15.4	32.3		229 57.4	20.0	25 59.6	55.0			25 59.6	55.0		Spica	159 06.2	S 11 00.2
16	65 53.5	46 01.6	54.4	175 17.1</														

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise						
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.		Naut.	Civil		26	27	28	29			
d	h	°	'	°	'	°	'	'	°	h	m	h	m	h	m	h	m	h	m
26 <																			

G.M.T.	ARIES			VENUS -3.7			MARS -0.2			JUPITER -2.0			SATURN +0.7			STARS		
	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h																		
29 00	186 13.2	166 29.5	N 16 51.7	295 30.7	S 21 33.6		5 22.2	N 1 21.2	161 19.2	N 7 56.0			Acamar	315 43.8	S 40 25.7			
01	201 15.6	181 33.0	51.3	310 32.4	33.8		20 25.0	21.3	176 21.3	56.1			Achernar	335 51.8	S 57 23.6			
02	216 18.1	196 36.5	51.0	325 34.1	33.9		35 27.7	21.4	191 23.5	56.2			Acruz	173 46.4	S 62 55.8			
03	231 20.6	211 40.0	50.6	340 35.8	34.1		50 30.5	21.5	206 25.7	56.3			Adhara	255 38.8	S 28 55.9			
04	246 23.0	226 43.5	50.3	355 37.5	34.2		65 33.2	21.7	221 27.9	56.5			Aldebaran	291 27.9	N 16 27.0			
05	261 25.5	241 47.0	49.9	10 39.2	34.4		80 36.0	21.8	236 30.0	56.6								
06	276 27.9	256 50.5	N 16 49.5	25 40.9	S 21 34.5		95 38.8	N 1 21.9	251 32.2	N 7 56.7			Alioth	166 49.0	N 56 07.5			
07	291 30.4	271 54.0	49.2	40 42.6	34.7		110 41.5	22.0	266 34.4	56.8			Alkaid	153 24.4	N 49 27.7			
08	306 32.9	286 57.6	48.8	55 44.3	34.8		125 44.3	22.2	281 36.6	56.9			Al Na'ir	28 25.7	S 47 06.7			
09	321 35.3	302 01.1	48.4	70 46.0	34.9		140 47.0	22.3	296 38.7	57.0			Anilam	276 20.3	S 1 13.2			
10	336 37.8	317 04.6	48.1	85 47.7	35.1		155 49.8	22.4	311 40.9	57.1			Alphard	218 28.7	S 8 31.5			
11	351 40.3	332 08.1	47.7	100 49.4	35.2		170 52.5	22.5	326 43.1	57.3								
12	6 42.7	347 11.7	N 16 47.3	115 51.1	S 21 35.4		185 55.3	N 1 22.7	341 45.3	N 7 57.4			Alphecca	126 39.0	N 26 48.7			
13	21 45.2	2 15.2	46.9	130 52.8	35.5		200 58.1	22.8	356 47.4	57.5			Alpheratz	358 18.5	N 28 55.1			
14	36 47.7	17 18.7	46.5	145 54.6	35.7		216 00.8	22.9	11 49.6	57.6			Altair	62 40.9	N 8 46.8			
15	51 50.1	32 22.3	46.1	160 56.3	35.8		231 03.6	23.0	26 51.8	57.7			Ankaa	353 48.8	S 42 28.4			
16	66 52.6	47 25.8	45.8	175 58.0	36.0		246 06.3	23.2	41 54.0	57.8			Antares	113 07.1	S 26 22.1			
17	81 55.1	62 29.4	45.4	190 59.7	36.1		261 09.1	23.3	56 56.1	57.9								
18	96 57.5	77 32.9	N 16 45.0	206 01.4	S 21 36.3		276 11.8	N 1 23.4	71 58.3	N 7 58.1			Arcturus	146 25.8	N 19 20.3			
19	112 00.0	92 36.5	44.6	221 03.1	36.4		291 14.6	23.5	87 00.5	58.2			Atria	108 38.8	S 68 58.4			
20	127 02.4	107 40.0	44.2	236 04.8	36.6		306 17.3	23.7	102 02.7	58.3			Avior	234 31.6	S 59 24.8			
21	142 04.9	122 43.6	43.8	251 06.6	36.7		321 20.1	23.8	117 04.8	58.4			Bellatrix	279 07.9	N 6 19.4			
22	157 07.4	137 47.2	43.3	266 08.3	36.9		336 22.9	23.9	132 07.0	58.5			Betelgeuse	271 37.5	N 7 24.2			
23	172 09.8	152 50.7	42.9	281 10.0	37.0		351 25.6	24.0	147 09.2	58.6								
30 00	187 12.3	167 54.3	N 16 42.5	296 11.7	S 21 37.1		6 28.4	N 1 24.2	162 11.4	N 7 58.7			Canopus	264 11.0	S 52 40.9			
01	202 14.8	182 57.9	42.1	311 13.4	37.3		21 31.1	24.3	177 13.5	58.9			Capella	281 24.0	N 45 58.4			
02	217 17.2	198 01.4	41.7	326 15.1	37.4		36 33.9	24.4	192 15.7	59.0			Deneb	49 54.6	N 45 09.8			
03	232 19.7	213 05.0	41.3	341 16.9	37.6		51 36.6	24.5	207 17.9	59.1			Denebola	183 07.3	N 14 44.5			
04	247 22.2	228 08.6	40.8	356 18.6	37.7		66 39.4	24.7	222 20.0	59.2			Diphda	349 29.6	S 18 09.4			
05	262 24.6	243 12.2	40.4	11 20.3	37.9		81 42.1	24.8	237 22.2	59.3								
06	277 27.1	258 15.7	N 16 40.0	26 22.0	S 21 38.0		96 44.9	N 1 24.9	252 24.4	N 7 59.4			Dubhe	194 31.5	N 61 55.1			
07	292 29.6	273 19.3	39.6	41 23.8	38.2		111 47.6	25.0	267 26.6	59.5			Elnath	278 54.9	N 28 35.2			
08	307 32.0	288 22.9	39.1	56 25.5	38.3		126 50.4	25.2	282 28.7	59.7			Eltanin	91 01.6	N 51 29.0			
09	322 34.5	303 26.5	38.7	71 27.2	38.5		141 53.2	25.3	297 30.9	59.8			Enif	34 20.1	N 9 43.7			
10	337 36.9	318 30.1	38.2	86 28.9	38.6		156 55.9	25.4	312 33.1	59.9			Fomalhaut	16 00.9	S 29 47.2			
11	352 39.4	333 33.7	37.8	101 30.7	38.7		171 58.7	25.5	327 35.3	60.0								
12	7 41.9	348 37.3	N 16 37.4	116 32.4	S 21 38.9		187 01.4	N 1 25.7	342 37.4	N 8 00.1			Gacrux	172 38.0	S 56 56.6			
13	22 44.3	3 40.9	36.9	131 34.1	39.0		202 04.2	25.8	357 39.6	60.2			Gienah	176 26.4	S 17 22.4			
14	37 46.8	18 44.5	36.5	146 35.8	39.2		217 06.9	25.9	12 41.8	60.3			Hadar	149 35.1	S 60 13.6			
15	52 49.3	33 48.1	36.0	161 37.6	39.3		232 09.7	26.0	27 44.0	60.5			Hamal	328 38.8	N 23 19.1			
16	67 51.7	48 51.7	35.6	176 39.3	39.5		247 12.4	26.2	42 46.1	60.6			Kaus Aust.	84 28.0	S 34 24.1			
17	82 54.2	63 55.3	35.1	191 41.0	39.6		262 15.2	26.3	57 48.3	60.7								
18	97 56.7	78 58.9	N 16 34.6	206 42.8	S 21 39.8		277 17.9	N 1 26.4	72 50.5	N 8 00.8			Kochab	137 17.0	N 74 16.6			
19	112 59.1	94 02.5	34.2	221 44.5	39.9		292 20.7	26.5	87 52.7	60.9			Markab	14 11.9	N 15 02.2			
20	128 01.6	109 06.2	33.7	236 46.2	40.0		307 23.4	26.7	102 54.8	61.0			Menkar	314 50.2	N 3 58.2			
21	143 04.1	124 09.8	33.2	251 48.0	40.2		322 26.2	26.8	117 57.0	61.1			Menkent	148 46.8	S 36 13.3			
22	158 06.5	139 13.4	32.8	266 49.7	40.3		337 28.9	26.9	132 59.2	61.3			Miaplacidus	221 46.7	S 69 35.6			
23	173 09.0	154 17.0	32.3	281 51.4	40.5		352 31.7	27.0	148 01.4	61.4								
31 00	188 11.4	169 20.7	N 16 31.8	296 53.2	S 21 40.6		7 34.5	N 1 27.2	163 03.5	N 8 01.5			Mirfak	309 28.8	N 49 45.4			
01	203 13.9	184 24.3	31.3	311 54.9	40.8		22 37.2	27.3	178 05.7	61.6			Nunki	76 39.6	S 26 20.3			
02	218 16.4	199 27.9	30.9	326 56.6	40.9		37 40.0	27.4	193 07.9	61.7			Peacock	54 11.8	S 56 50.1			
03	233 18.8	214 31.6	30.4	341 58.4	41.1		52 42.7	27.5	208 10.0	61.8			Pollux	244 08.4	N 28 06.3			
04	248 21.3	229 35.2	29.9	357 00.1	41.2		67 45.5	27.7	223 12.2	61.9			Procyon	245 34.5	N 5 18.3			
05	263 23.8	244 38.8	29.4	12 01.9	41.3		82 48.2	27.8	238 14.4	62.1								
06	278 26.2	259 42.5	N 16 28.9	27 03.6	S 21 41.5		97 51.0	N 1 27.9	253 16.6	N 8 02.2			Rasalhague	96 37.3	N 12 34.5			
07	293 28.7	274 46.1	28.4	42 05.4	41.6		112 53.7	28.0	268 18.7	62.3			Regulus	208 18.7	N 12 07.1			
08	308 31.2	289 49.8	27.9	57 07.1	41.8		127 56.5	28.2	283 20.9	62.4			Rigel	281 44.2	S 8 14.2			
09	323 33.6	304 53.4	27.4	72 08.8	41.9		142 59.2	28.3	298 23.1	62.5			Rigel Kent.	140 37.0	S 60 42.5			
10	338 36.1	319 57.1	26.9	87 10.6	42.1		158 02.0	28.4	313 25.3	62.6			Sabik	102 50.7	S 15 41.5			
11	353 38.5	335 00.7	26.4	102 12.3	42.2		173 04.7	28.5	328 27.4	62.7								
12	8 41.0	350 04.4	N 16 25.9	117 14.1	S 21 42.3		188 07.5	N 1 28.6	343 29.6	N 8 02.9			Schedar	350 19.6	N 56 22.1			
13	23 43.5	5 08.1	25.4	132 15.8	42.5		203 10.2	28.8	358 31.8	63.0			Shaula	97 07.2	S 37 05.0			
14	38 45.9	20 11.7	24.9	147 17.6	42.6		218 13.0	28.9	13 34.0	63.1			Sirius	259 03.2	S 16 40.4			
15	53 48.4	35 15.4	24.4	162 19.3	42.8		233 15.7	29.0	28 36.1	63.2			Spica	159 06.2	S 11 00.2			
16	68 50.9	50 19.1	23.9	177 21.1	42.9		248 18.5	29.1	43 38.3	63.3			Suhail	223 16.9	S 43 18.6			
17	83 53.3	65 22.7	23.3	192 22.8	43.1		263 21.3	29.3	58 40.5	63.4								
18	98 55.8	80 26.4	N 16 22.8	207 24.6	S 21 43.2		278 24.0	N 1 29.4	73 42.6	N 8 03.5			Vega	81 01.6	N 38 44.8			
19	113 58.3	95 30.1	22.3	222 26.3	43.3		293 26.8	29.5	88 44.8	63.7			Zuben'ubi	137 42.2	S 15 55.1			
20	129 00.7	110 33.7	21.8	237 28.1	43.5		308 29.5	29.6	103 47.0	63.8								
21	144 03.2	125 37.4	21.2	252 29.8	43.6		323 32.3	29.8	118 49.2	63.9								
22	159 05.6	140 41.1	20.7	267 31.6														

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise																		
		G.H.A.	Dec.	G.H.A.	φ	Dec.	d	H.P.		Naut.	Civil		29	30	31	I															
d	h	°	'	°	'	°	'	°	'	°	'	h	m	h	m	h	m	h	m												
29	00	178	45.4	N	3	13.5	51	44.8	12.5	N	21	22.5	10.3	55.1	N	72	02	03	03	55	05	08		12	20	14	51	17	06		
	01	178	45.6			14.5	66	16.3	12.6			21	12.2	10.5	55.1	N	70	02	38	04	09	05	14	09	44	12	50	15	03	17	07
	02	208	45.8			15.4	80	47.9	12.6			21	01.7	10.5	55.2	68	03	02	04	21	05	19	10	53	13	12	15	12	17	08	
	03	223	46.0			16.4	95	19.5	12.6			20	51.2	10.7	55.2	66	03	21	04	30	05	23	11	29	13	29	15	20	17	09	
	04	238	46.1			17.4	109	51.1	12.7			20	40.5	10.8	55.2	64	03	35	04	38	05	27	11	54	13	43	15	27	17	09	
	05	253	46.3			18.4	124	22.8	12.7			20	29.7	10.8	55.2	62	03	47	04	44	05	30	12	14	13	55	15	32	17	10	
	06	268	46.5	N	3	19.3	138	54.5	12.8	N	20	18.9	11.0	55.2	60	03	57	04	50	05	32	12	30	14	05	15	37	17	10		
	07	283	46.7			20.3	153	26.3	12.8			20	07.9	11.1	55.3	N	58	04	06	04	55	05	35	12	44	14	13	15	42	17	11
	08	298	46.9			21.3	167	58.1	12.9			19	56.8	11.1	55.3	56	04	13	04	59	05	37	12	55	14	20	15	45	17	11	
	09	313	47.1			22.3	182	30.0	12.9			19	45.7	11.3	55.3	54	04	20	05	03	05	38	13	05	14	27	15	49	17	11	
30	00	178	49.9	N	3	36.9	40	32.9	13.5	N	16	47.1	12.6	55.7	S	50	05	07	05	45	06	17	16	38	16	53	17	07	17	20	
	01	193	50.1			37.8	55	05.4	13.5			16	34.5	12.7	55.7	52	05	05	05	45	06	18	16	45	16	58	17	10	17	20	
	02	208	50.3			38.8	69	37.9	13.6			16	21.8	12.8	55.7	54	05	03	05	44	06	19	16	53	17	04	17	12	17	20	
	03	223	50.5			39.8	84	10.5	13.6			16	09.0	12.9	55.8	56	05	00	05	44	06	21	17	03	17	10	17	16	17	21	
	04	238	50.7			40.7	98	43.1	13.6			15	56.1	12.9	55.8	58	04	57	05	43	06	22	17	13	17	17	17	19	17	21	
	05	253	50.9			41.7	113	15.7	13.7			15	43.2	13.1	55.8	S	60	04	53	05	42	06	24	17	25	17	24	17	23	17	21
	06	268	51.1	N	3	42.7	127	48.4	13.7	N	15	30.1	13.1	55.8																	
	07	283	51.3			43.7	142	21.1	13.7			15	17.0	13.2	55.9	Lat.	Sun-set	Twilight		Moonset											
	08	298	51.5			44.6	156	53.8	13.7			15	03.8	13.2	55.9				Civil	Naut.	29	30	31	I							
	09	313	51.6			45.6	171	26.5	13.8			14	50.6	13.4	55.9	°	h	m	h	m	h	m	h	m	h	m	h	m	h	m	
31	00	178	54.5	N	4	00.1	29	41.0	14.1	N	11	22.7	14.4	56.4	N	72	19	04	20	18	22	15		07	16	06	20	05	41		
	01	193	54.7			01.1	44	14.1	14.1			11	08.3	14.5	56.4	N	70	18	58	20	03	21	37	08	15	06	44	06	05	05	36
	02	208	54.9			02.1	58	47.2	14.2			10	53.8	14.5	56.4	68	18	52	19	51	21	11	07	04	06	20	05	53	05	32	
	03	223	55.1			03.0	73	20.4	14.2			10	39.3	14.6	56.4	66	18	48	19	42	20	52	06	27	06	01	05	43	05	28	
	04	238	55.2			04.0	87	53.6	14.2			10	24.7	14.7	56.5	64	18	44	19	34	20	37	06	00	05	46	05	35	05	25	
	05	253	55.4			05.0	102	26.8	14.2			10	10.0	14.7	56.5	62	18	41	19	27	20	24	05	40	05	33	05	28	05	22	
	06	268	55.6	N	4	06.0	117	00.0	14.2	N	9	55.3	14.7	56.5	60	18	38	19	21	20	14	05	23	05	23	05	22	05	20		
	07	283	55.8			06.9	131	33.2	14.2			9	40.6	14.9	56.6	N	58	18	36	19	16	20	05	05	08	05	13	05	16	05	18
	08	298	56.0			07.9	146	06.4	14.2			9	25.7	14.8	56.6	56	18	34	19	12	19	58	04	56	05	05	05	11	05	16	
	09	313	56.2			08.9	160	39.6	14.3			9	10.9	15.0	56.6	54	18	32	19	08	19	51	04	45	04	57	05	07	05	15	
32	00	178	58.8	N	4	11.8	204	19.4	14.2	N	8	25.9	15.1	56.7	52	18	30	19	04	19	45	04	36	04	51	05	03	05	13		
	01	193	59.0			12.7	218	52.6	14.3			8	10.8	15.2	56.7	50	18	28	19	01	19	40	04	27	04	44	04	59	05	12	
	02	208	59.2			13.7	233	25.9	14.3			7	55.6	15.2	56.8	45	18	25	18	54	19	30	04	09	04	31	04	51	05	09	
	03	223	59.4			14.7	247	59.2	14.2			7	40.4	15.2	56.8	N	40	18	22	18	49	19	21	03	54	04	20	04	44	05	06
	04	238	59.6			15.6	262	32.4	14.3			7	25.2	15.3	56.8	35	18	20	18	45	19	15	03	41	04	11	04	38	05	04	
	05	253	59.8			16.6	277	05.7	14.3			6	54.5	15.4	56.9	30	18	17	18	41	19	09	03	30	04	03	04	33	05	02	
	06	268	59.9	N	4	17.6	291	39.0	14.3	N	6	54.5	15.4	56.9	20	18	14	18	36	19	02	03	10	03	48	04	24	04	58		
	07	283	60.1			18.5	306	12.3	14.2			6	39.1	15.4	56.9	N	10	18	11	18	32	18	56	02	53	03	36	04	16	04	55
	08	298	60.3			19.5	320	45.5	14.3			6	23.7	15.5	56.9	0	18	08	18	29	18	53	02	38	03	24	04	08	04	52	
	09	313	60.5			20.5	335	18.8	14.3			6	08.2	15.5	57.0	S	10	18	05	18	26	18	51	02	22	03	12	04	01	04	49
33	00	178	63.1	N	4	23.2	209	48.1	14.2	N	5	10.9	15.5	57.0	S	20	18	02	18	24	18	50	02	04	02	59	03	52	04	46	
	01	193	63.3			24.2	224	58.3	14.2			5	0.1	15.6	57.0	30	17	59	18	23	18	51	01	44	02	44	03	43	04	42	
	02	208	63.5			25.2	239	68.5	14.2			5	10.2	15.6	57.0	35	17	58	18	23	18	52	01	33	02	35	03	37	04	40	
	03	223	63.7			26.2	254	78.7	14.2			5	0.2	15.6	57.0	40	17	56	18	23	18	54	01	19	02	25	03	31	04	38	
	04	238	63.9			27.2	269	88.9	14.2			5	10.3	15.6	57.0	45	17	54	18	23	18	57	01	03	02	13	03	24	04	35	
	05	253	64.1			28.2	284	99.1	14.2			5	0.4	15.6	57.0	S	50	17	51	18	23	19	01	00	43	01	59	03	15	04	31
	06	268	64.3			29.2	299	109.3	14.2			5	10.4	15.6	57.0	52	17	50	18	23	19	03	00	34	01	52	03	11	04	30	
	07	283	64.5			30.2	314	119.5	14.2			5	0.5	15.6	57.0	54	17	49	18	24	19	05	00	23	01	44	03	06	04	28	
	08	298	64.70.																												

		ARIES			VENUS -3-5			MARS -0-2			JUPITER -2-0			SATURN +0-7			STARS		
G.M.T.		G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	Name	S.H.A.	Dec.
d	h	°	'	°	°	'	°	°	°	'	°	°	'	°	°	'		°	°
1	00	189	10-6	170 48-5 N 16	19-6	297 35-1 S 21	44-0	8 40-5 N	1 30-1	163 55-7 N	8 04-2	Acamar	315 43-8	S 40 25-7					
	01	204	13-0	185 52-2	19-1	312 36-9	44-2	23 43-3	30-2	178 57-8	04-3	Achernar	335 51-8	S 57 23-6					
	02	219	15-5	200 55-9	18-5	327 38-6	44-3	38 46-0	30-4	194 00-0	04-5	Acrux	173 46-4	S 62 55-9					
	03	234	18-0	215 59-5	18-0	342 40-4	44-5	53 48-8	30-5	209 02-2	04-6	Adhara	255 38-8	S 28 55-9					
	04	249	20-4	231 03-2	17-5	357 42-1	44-6	68 51-5	30-6	224 04-4	04-7	Aldebaran	291 27-9	N 16 27-0					
TUESDAY	05	264	22-9	246 06-9	16-9	12 43-9	44-7	83 54-3	30-7	239 06-5	04-8								
	06	279	25-4	261 10-6 N 16	16-4	27 45-7 S 21	44-9	98 57-0 N	1 30-9	254 08-7 N	8 04-9	Alioth	166 49-0	N 56 07-5					
	07	294	27-8	276 14-3	15-8	42 47-4	45-0	113 59-8	31-0	269 10-9	05-0	Alkaid	153 24-4	N 49 27-8					
	08	309	30-3	291 18-0	15-2	57 49-2	45-2	129 02-5	31-1	284 13-1	05-2	Al Na'ir	28 25-7	S 47 06-6					
	09	324	32-8	306 21-7	14-7	72 51-0	45-3	144 05-3	31-2	299 15-2	05-3	Anilam	276 20-3	S 1 13-2					
WEDNESDAY	10	339	35-2	321 25-4	14-1	87 52-7	45-5	159 08-0	31-3	314 17-4	05-4	Alphard	218 28-7	S 8 31-5					
	11	354	37-7	336 29-1	13-6	102 54-5	45-6	174 10-8	31-5	329 19-6	05-5								
	12	9 40-1	351 32-8 N 16	13-0	117 56-3 S 21	45-7	189 13-5 N	1 31-6	344 21-7 N	8 05-6	Alphecca	126 38-9	N 26 48-7						
	13	24 42-6	6 36-6	12-4	132 58-0	45-9	204 16-3	31-7	359 23-9	05-7	Alpheratz	358 18-5	N 28 55-1						
	14	39 45-1	21 40-3	11-8	147 59-8	46-0	219 19-0	31-8	14 26-1	05-8	Altair	62 40-9	N 8 46-8						
THURSDAY	15	54 47-5	36 44-0	11-3	163 01-6	46-2	234 21-8	32-0	29 28-3	06-0	Ankaa	353 48-8	S 42 28-4						
	16	69 50-0	51 47-7	10-7	178 03-3	46-3	249 24-5	32-1	44 30-4	06-1	Antares	113 07-1	S 26 22-1						
	17	84 52-5	66 51-4	10-1	193 05-1	46-4	264 27-3	32-2	59 32-6	06-2									
	18	99 54-9	81 55-1 N 16	09-5	208 06-9 S 21	46-6	279 30-0 N	1 32-3	74 34-8 N	8 06-3	Arcturus	146 25-8	N 19 20-3						
	19	114 57-4	96 58-9	09-0	223 08-7	46-7	294 32-8	32-4	89 36-9	06-4	Atria	108 38-8	S 68 58-4						
FRIDAY	20	129 59-9	112 02-6	08-4	238 10-4	46-9	309 35-5	32-6	104 39-1	06-5	Avior	234 31-7	S 59 24-8						
	21	145 02-3	127 06-3	07-8	253 12-2	47-0	324 38-3	32-7	119 41-3	06-6	Bellatrix	279 07-9	N 6 19-4						
	22	160 04-8	142 10-1	07-2	268 14-0	47-1	339 41-0	32-8	134 43-5	06-8	Betelgeuse	271 37-5	N 7 24-2						
	23	175 07-3	157 13-8	06-6	283 15-8	47-3	354 43-8	32-9	149 45-6	06-9									
	2	00	190 09-7	172 17-5 N 16	06-0	298 17-5 S 21	47-4	9 46-5 N	1 33-0	164 47-8 N	8 07-0	Canopus	264 11-1	S 52 40-9					
SATURDAY	01	205 12-2	187 21-3	05-4	313 19-3	47-5	24 49-3	33-2	179 50-0	07-1	Capella	281 24-0	N 45 58-4						
	02	220 14-6	202 25-0	04-8	328 21-1	47-7	39 52-0	33-3	194 52-1	07-2	Deneb	49 54-6	N 45 09-8						
	03	235 17-1	217 28-7	04-2	343 22-9	47-8	54 54-8	33-4	209 54-3	07-3	Denebola	183 07-3	N 14 44-5						
	04	250 19-6	232 32-5	03-6	358 24-7	48-0	69 57-5	33-5	224 56-5	07-4	Diphda	349 29-6	S 18 09-4						
	05	265 22-0	247 36-2	03-0	13 26-4	48-1	85 00-3	33-7	239 58-7	07-6									
SUNDAY	06	280 24-5	262 39-9 N 16	02-4	28 28-2 S 21	48-2	100 03-0 N	1 33-8	255 00-8 N	8 07-7	Dubhe	194 31-5	N 61 55-1						
	07	295 27-0	277 43-7	01-7	43 30-0	48-4	115 05-8	33-9	270 03-0	07-8	El Nath	278 55-0	N 28 35-2						
	08	310 29-4	292 47-4	01-1	58 31-8	48-5	130 08-5	34-0	285 05-2	07-9	Eltanin	91 01-5	N 51 29-0						
	09	325 31-9	307 51-2	16 00-5	73 33-6	48-7	145 11-3	34-1	300 07-3	08-0	Enif	34 20-1	N 9 43-7						
	10	340 34-4	322 54-9	15 59-9	88 35-4	48-8	160 14-0	34-3	315 09-5	08-1	Fomalhaut	16 00-9	S 29 47-2						
MONDAY	11	355 36-8	337 58-7	59-3	103 37-1	48-9	175 16-8	34-4	330 11-7	08-2									
	12	10 39-3	353 02-4 N 15	58-6	118 38-9 S 21	49-1	190 19-5 N	1 34-5	345 13-9 N	8 08-4	Gacrux	172 38-0	S 56 56-6						
	13	25 41-8	8 06-2	58-0	133 40-7	49-2	205 22-3	34-6	0 16-0	08-5	Gienah	176 26-4	S 17 22-4						
	14	40 44-2	23 09-9	57-4	148 42-5	49-3	220 25-0	34-7	15 18-2	08-6	Hadar	149 35-1	S 60 13-6						
	15	55 46-7	38 13-7	56-8	163 44-3	49-5	235 27-8	34-9	30 20-4	08-7	Hamal	328 38-8	N 23 19-1						
TUESDAY	16	70 49-1	53 17-5	56-1	178 46-1	49-6	250 30-5	35-0	45 22-5	08-8	Kaus Aust.	84 28-0	S 34 24-1						
	17	85 51-6	68 21-2	55-5	193 47-9	49-8	265 33-2	35-1	60 24-7	08-9									
	18	100 54-1	83 25-0 N 15	54-8	208 49-7 S 21	49-9	280 36-0 N	1 35-2	75 26-9 N	8 09-0	Kochab	137 16-9	N 74 16-6						
	19	115 56-5	98 28-8	54-2	223 51-5	50-0	295 38-7	35-3	90 29-1	09-2	Markab	14 11-9	N 15 02-2						
	20	130 59-0	113 32-5	53-5	238 53-3	50-2	310 41-5	35-5	105 31-2	09-3	Menkar	314 50-2	N 3 58-2						
WEDNESDAY	21	146 01-5	128 36-3	52-9	253 55-1	50-3	325 44-2	35-6	120 33-4	09-4	Menkent	148 46-8	S 36 13-3						
	22	161 03-9	143 40-1	52-2	268 56-8	50-5	340 47-0	35-7	135 35-6	09-5	Miaplacidus	221 46-7	S 69 35-6						
	23	176 06-4	158 43-8	51-6	283 58-6	50-6	355 49-7	35-8	150 37-7	09-6									
	3	00	191 08-9	173 47-6 N 15	50-9	299 00-4 S 21	50-7	10 52-5 N	1 36-0	165 39-9 N	8 09-7	Mirfak	309 28-8	N 49 45-4					
	01	206 11-3	188 51-4	50-3	314 02-2	50-9	25 55-2	36-1	180 42-1	09-8	Nunki	76 39-6	S 26 20-3						
THURSDAY	02	221 13-8	203 55-2	49-6	329 04-0	51-0	40 58-0	36-2	195 44-2	10-0	Peacock	54 11-7	S 56 50-1						
	03	236 16-2	218 58-9	49-0	344 05-8	51-1	56 00-7	36-3	210 46-4	10-1	Pollux	244 08-4	N 28 06-3						
	04	251 18-7	234 02-7	48-3	359 07-6	51-3	71 03-5	36-4	225 48-6	10-2	Procyon	245 34-5	N 5 18-3						
	05	266 21-2	249 06-5	47-6	14 09-4	51-4	86 06-2	36-6	240 50-8	10-3									
	06	281 23-6	264 10-3 N 15	47-0	29 11-2 S 21	51-5	101 09-0 N	1 36-7	255 52-9 N	8 10-4	Rasalhague	96 37-3	N 12 34-5						
FRIDAY	07	296 26-1	279 14-0	46-3	44 13-1	51-7	116 11-7	36-8	270 55-1	10-5	Regulus	208 18-7	N 12 07-1						
	08	311 28-6	294 17-8	45-6	59 14-9	51-8	131 14-5	36-9	285 57-3	10-7	Rigel	281 44-3	S 8 14-2						
	09	326 31-0	309 21-6	45-0	74 16-7	52-0	146 17-2	37-0	300 59-4	10-8	Rigel Kent.	140 37-0	S 60 42-5						
	10	341 33-5	324 25-4	44-3	89 18-5	52-1	161 19-9	37-2	316 01-6	10-9	Sabik	102 50-7	S 15 41-5						
	11	356 36-0	339 29-2	43-6	104 20-3	52-2	176 22-7	37-3	331 03-8	11-0									
SATURDAY	12	11 38-4	354 33-0 N 15	42-9	119 22-1 S 21	52-4	191 25-4 N	1 37-4	346 05-9 N	8 11-1	Schedar	350 19-6	N 56 22-1						
	13	26 40-9	9 36-8	42-2	134 23-9	52-5	206 28-2	37-5	1 08-1	11-2	Shaula	97 07-1	S 37 05-1						
	14	41 43-4	24 40-6	41-5	149 25-7	52-6	221 30-9	37-6	16 10-3	11-3	Sirius	259 03-2	S 16 40-4						
	15	56 45-8	39 44-3	40-9	164 27-5	52-8	236 33-7	37-7	31 12-5	11-5	Spica	159 06-2	S 11 00-2						
	16	71 48-3	54 48-1	40-2	179 29-3	52-9	251 36-4	37-9	46 14-6	11-6	Suhail	223 16-9	S 43 18-6						
SUNDAY	17	86 50-7	69 51-9	39-5	194 31-1	53-0	266 39-2	38-0	61 16-8	11-7									
	18	101 53-2	84 55-7 N 15	38-8	209 33-0 S 21	53-2	281 41-9 N	1 38-1	76 19-0 N	8 11-8	Vega	81 01-6	N 38 44-8						
	19	116 55-7	99 59-5	38-1	224 34-8	53-3	296 44-7	38-2	91 21-1	11-9	Zuben'ubi	137 42-2	S 15 55-1						
	20	131 58-1	115 03-3	37-4	239 36-6	53-4	311 47-4	38-3	106 23-3	12-0									
	21	147 00-6	130 07-1	36-7	254 38-4	53-6	326 50-1	38-5	121 25-5	12-1									
MONDAY	22	162 03-																	

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise				
		G.H.A.	Dec.	G.H.A.	ν	Dec.	d		H.P.	Naut.		Civil	1	2	3	4
d	h															
TUESDAY	00	178 59.0	N 4 23.4	18 58.6	14.2	N 5 21.5	15.7	57.1	N 72	01 28	03 36	04 52	17 06	19 25	22 05	
	01	193 59.2	24.3	33 31.8	14.3	5 05.8	15.7	57.1	N 70	02 15	03 53	05 00	17 07	19 15	21 37	
	02	208 59.4	25.3	48 05.1	14.2	4 50.1	15.7	57.1	68	02 44	04 07	05 06	17 08	19 07	21 16	23 57
	03	223 59.6	26.2	62 38.3	14.2	4 34.4	15.8	57.1	66	03 05	04 17	05 11	17 09	19 00	21 00	23 18
	04	238 59.8	27.2	77 11.5	14.2	4 18.6	15.8	57.2	64	03 22	04 26	05 16	17 09	18 55	20 47	22 51
	05	254 00.0	28.2	91 44.7	14.2	4 02.8	15.8	57.2	62	03 35	04 34	05 20	17 10	18 50	20 36	22 31
	06	269 00.1	N 4 29.1	106 17.9	14.2	N 3 47.0	15.9	57.2	60	03 47	04 40	05 23	17 10	18 46	20 26	22 14
	07	284 00.3	30.1	120 51.1	14.2	3 31.1	15.9	57.3	N 58	03 56	04 46	05 26	17 11	18 42	20 18	22 00
	08	299 00.5	31.1	135 24.3	14.1	3 15.2	15.9	57.3	56	04 04	04 51	05 29	17 11	18 39	20 11	21 48
	09	314 00.7	32.0	149 57.4	14.2	2 59.3	15.9	57.3	54	04 11	04 55	05 31	17 11	18 36	20 05	21 38
	10	329 00.9	33.0	164 30.6	14.1	2 43.4	16.0	57.3	52	04 18	04 59	05 33	17 12	18 34	19 59	21 29
	11	344 01.1	34.0	179 03.7	14.1	2 27.4	16.1	57.4	50	04 23	05 03	05 35	17 12	18 31	19 54	21 21
	12	359 01.3	N 4 34.9	193 36.8	14.1	N 2 11.3	16.0	57.4	45	04 35	05 10	05 39	17 12	18 26	19 43	21 03
	13	14 01.5	35.9	208 09.9	14.0	1 55.3	16.1	57.4	N 40	04 43	05 16	05 43	17 13	18 22	19 34	20 49
	14	29 01.6	36.9	222 42.9	14.0	1 39.2	16.1	57.5	35	04 51	05 21	05 46	17 13	18 19	19 26	20 37
	15	44 01.8	37.8	237 15.9	14.1	1 23.1	16.1	57.5	30	04 56	05 24	05 49	17 14	18 15	19 20	20 27
	16	59 02.0	38.8	251 49.0	13.9	1 07.0	16.1	57.5	20	05 05	05 31	05 53	17 14	18 10	19 08	20 09
	17	74 02.2	39.7	266 21.9	14.0	0 50.9	16.2	57.5	N 10	05 11	05 36	05 57	17 15	18 05	18 58	19 54
	18	89 02.4	N 4 40.7	280 54.9	13.9	N 0 34.7	16.1	57.6	0	05 16	05 40	06 00	17 16	18 01	18 49	19 40
	19	104 02.6	41.7	295 27.8	13.9	0 18.6	16.2	57.6	S 10	05 18	05 43	06 04	17 16	17 57	18 39	19 26
	20	119 02.8	42.6	310 00.7	13.9	N 0 02.4	16.3	57.6	20	05 20	05 45	06 07	17 17	17 52	18 30	19 11
	21	134 03.0	43.6	324 33.6	13.8	S 0 13.9	16.2	57.7	30	05 20	05 47	06 11	17 17	17 47	18 19	18 54
	22	149 03.1	44.6	339 06.4	13.9	0 30.1	16.2	57.7	35	05 19	05 48	06 13	17 18	17 44	18 12	18 45
23	164 03.3	45.5	353 39.3	13.7	0 46.3	16.3	57.7	40	05 17	05 49	06 16	17 18	17 41	18 05	18 34	
2	179 03.5	N 4 46.5	8 12.0	13.8	S 1 02.6	16.2	57.7	45	05 15	05 49	06 18	17 19	17 37	17 57	18 21	
WEDNESDAY	00	194 03.7	47.4	22 44.8	13.7	1 18.8	16.3	57.8	S 50	05 12	05 49	06 22	17 20	17 33	17 47	18 05
	01	209 03.9	48.4	37 17.5	13.6	1 35.1	16.3	57.8	52	05 11	05 50	06 23	17 20	17 30	17 43	17 58
	02	224 04.1	49.4	51 50.1	13.7	1 51.4	16.3	57.8	54	05 09	05 50	06 25	17 20	17 28	17 38	17 50
	03	239 04.3	50.3	66 22.8	13.6	2 07.7	16.3	57.9	56	05 06	05 50	06 27	17 21	17 26	17 32	17 41
	04	254 04.5	51.3	80 55.4	13.5	2 24.0	16.3	57.9	58	05 04	05 50	06 29	17 21	17 23	17 26	17 31
	05	269 04.6	N 4 52.3	95 27.9	13.5	S 2 40.3	16.3	57.9	S 60	05 01	05 49	06 31	17 21	17 20	17 19	17 19
	06	284 04.8	53.2	110 00.4	13.5	2 56.6	16.3	57.9								
	07	299 05.0	54.2	124 32.9	13.4	3 12.9	16.3	58.0	Lat.	Sun-set	Twilight		Moonset			
	08	314 05.2	55.1	139 05.3	13.4	3 29.2	16.3	58.0		Civil	Naut.		1	2	3	4
	09	329 05.4	56.1	153 37.7	13.3	3 45.5	16.3	58.0	$^{\circ}$	h m	h m	h m	h m	h m	h m	h m
	10	344 05.6	57.1	168 10.0	13.3	4 01.8	16.3	58.0	N 72	19 18	20 35	22 52	05 41	05 05	04 25	03 27
	11	359 05.8	N 4 58.0	182 42.3	13.2	S 4 18.1	16.3	58.1	N 70	19 10	20 17	21 59	05 36	05 08	04 38	03 58
	12	14 05.9	59.0	197 14.5	13.2	4 34.4	16.3	58.1	68	19 03	20 04	21 28	05 32	05 11	04 49	04 20
	13	29 06.1	4 59.9	211 46.7	13.1	4 50.7	16.3	58.1	66	18 58	19 53	21 06	05 28	05 13	04 57	04 38
	14	44 06.3	5 00.9	226 18.8	13.1	5 07.0	16.2	58.1	64	18 53	19 43	20 48	05 25	05 15	05 05	04 53
	15	59 06.5	01.9	240 50.9	13.0	5 23.2	16.3	58.2	62	18 49	19 36	20 35	05 22	05 17	05 11	05 05
	16	74 06.7	02.8	255 22.9	13.0	5 39.5	16.2	58.2	60	18 46	19 29	20 23	05 20	05 19	05 17	05 16
	17	89 06.9	N 5 03.8	269 54.9	12.9	S 5 55.7	16.3	58.2	N 58	18 43	19 23	20 13	05 18	05 20	05 22	05 25
	18	104 07.1	04.7	284 26.8	12.9	6 12.0	16.2	58.2	56	18 40	19 18	20 05	05 16	05 21	05 27	05 34
	19	119 07.3	05.7	298 58.7	12.8	6 28.2	16.2	58.3	54	18 37	19 14	19 58	05 15	05 22	05 31	05 41
	20	134 07.4	06.7	313 30.5	12.7	6 44.4	16.2	58.3	52	18 35	19 10	19 51	05 13	05 23	05 34	05 47
	21	149 07.6	07.6	328 02.2	12.7	7 00.6	16.1	58.3	50	18 33	19 06	19 46	05 12	05 24	05 38	05 53
	22	164 07.8	08.6	342 33.9	12.6	7 16.7	16.2	58.4	45	18 29	18 58	19 34	05 09	05 26	05 45	06 06
THURSDAY	00	179 08.0	N 5 09.5	357 05.5	12.5	S 7 32.9	16.1	58.4	N 40	18 25	18 53	19 25	05 06	05 28	05 51	06 17
	01	194 08.2	10.5	11 37.0	12.5	7 49.0	16.1	58.4	35	18 22	18 47	19 18	05 04	05 29	05 56	06 26
	02	209 08.4	11.4	26 08.5	12.4	8 05.1	16.1	58.4	30	18 19	18 43	19 11	05 02	05 31	06 01	06 34
	03	224 08.6	12.4	40 39.9	12.4	8 21.2	16.0	58.4	20	18 15	18 37	19 03	04 58	05 33	06 09	06 49
	04	239 08.7	13.4	55 11.3	12.3	8 37.2	16.0	58.5	N 10	18 10	18 32	18 56	04 55	05 35	06 16	07 01
	05	254 08.9	14.3	69 42.6	12.2	8 53.2	16.0	58.5	0	18 07	18 28	18 52	04 52	05 37	06 23	07 13
	06	269 09.1	N 5 15.3	84 13.8	12.1	S 9 09.2	15.9	58.5	S 10	18 03	18 25	18 49	04 49	05 39	06 30	07 24
	07	284 09.3	16.2	98 44.9	12.1	9 25.1	15.9	58.5	20	18 00	18 22	18 47	04 46	05 41	06 37	07 37
	08	299 09.5	17.2	113 16.0	12.0	9 41.0	15.9	58.6	30	17 56	18 20	18 47	04 42	05 43	06 46	07 51
	09	314 09.7	18.2	127 47.0	11.9	9 56.9	15.9	58.6	35	17 54	18 19	18 48	04 40	05 44	06 51	08 00
	10	329 09.9	19.1	142 17.9	11.9	10 12.8	15.8	58.6	40	17 51	18 18	18 49	04 38	05 46	06 56	08 09
	11	344 10.0	20.1	156 48.8	11.7	10 28.6	15.7	58.6	45	17 48	18 17	18 51	04 35	05 47	07 02	08 21
	12	359 10.2	N 5 21.0	171 19.5	11.7	S 10 44.3	15.7	58.6	S 50	17 45	18 17	18 54	04 31	05 49	07 10	08 35
	13	14 10.4	22.0	185 50.2	11.6	11 00.0	15.7	58.7	52	17 43	18 17	18 56	04 30	05 50	07 14	08 41
	14	29 10.6	22.9	200 20.8	11.6	11 15.7	15.6	58.7	54	17 41	18 17	18 57	04 28	05 51	07 18	08 48
	15	44 10.8	23.9	214 51.4	11.4	11 31.3	15.6	58.7	56	17 40	18 17	19 00	04 26	05 53	07 22	08 56
	16	59 11.0	24.9	229 21.8	11.4	11 46.9	15.5	58.7	58	17 37	18 17	19 02	04 24	05 54	07 27	09 06

G.M.T.		ARIES		VENUS -3.3		MARS -0.3		JUPITER -2.0		SATURN +0.7		STARS			
		G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d	h	°	'	"	°	'	°	'	°	'	°	'		°	'
FRI DAY	00	192	08.0	175 18.5	N15 34.5	299 43.9	S21 54.0	11 58.4	N 1 38.8	166 32.0	N 8 12.5		Acamar	315 43.8	S 40 25.7
	01	207	10.5	190 22.3	33.8	314 45.7	54.1	27 01.1	38.9	181 34.2	12.6		Achernar	335 51.8	S 57 23.6
	02	222	12.9	205 26.2	33.1	329 47.5	54.3	42 03.9	39.1	196 36.3	12.7		Acrux	173 46.4	S 62 55.9
	03	237	15.4	220 30.0	.. 32.4	344 49.3	.. 54.4	57 06.6	.. 39.2	211 38.5	.. 12.8		Adhara	255 38.8	S 28 55.9
	04	252	17.8	235 33.8	31.7	359 51.1	54.5	72 09.4	39.3	226 40.7	12.9		Aldebaran	291 27.9	N 16 27.0
	05	267	20.3	250 37.6	31.0	14 53.0	54.7	87 12.1	39.4	241 42.8	13.1				
	06	282	22.8	265 41.4	N15 30.3	29 54.8	S21 54.8	102 14.8	N 1 39.5	256 45.0	N 8 13.2		Alioth	166 49.0	N 56 07.5
	07	297	25.2	280 45.2	29.5	44 56.6	54.9	117 17.6	39.7	271 47.2	13.3		Alkaid	153 24.4	N 49 27.8
	08	312	27.7	295 49.0	28.8	59 58.4	55.1	132 20.3	39.8	286 49.4	13.4		Al Na'ir	28 25.7	S 47 06.6
	09	327	30.2	310 52.8	.. 28.1	75 00.3	.. 55.2	147 23.1	.. 39.9	301 51.5	.. 13.5		Anilam	276 20.4	S 1 13.2
	10	342	32.6	325 56.6	27.3	90 02.1	55.3	162 25.8	40.0	316 53.7	13.6		Alphard	218 28.7	S 8 31.5
	11	357	35.1	341 00.4	26.6	105 03.9	55.5	177 28.6	40.1	331 55.9	13.7				
	12	12 37.6	356 04.2	N15 25.9	120 05.8	S21 55.6	192 31.3	N 1 40.2	346 58.0	N 8 13.9			Alphecca	126 38.9	N 26 48.7
	13	27 40.0	11 08.1	25.1	135 07.6	55.7	207 34.1	40.4	2 00.2	14.0			Alpheratz	358 18.5	N 28 55.1
	14	42 42.5	26 11.9	24.4	150 09.4	55.9	222 36.8	40.5	17 02.4	14.1			Altair	62 40.8	N 8 46.8
	15	57 44.9	41 15.7	.. 23.7	165 11.2	.. 56.0	237 39.5	.. 40.6	32 04.5	.. 14.2			Ankaa	353 48.8	S 42 28.4
	16	72 47.4	56 19.5	22.9	180 13.1	56.1	252 42.3	40.7	47 06.7	14.3			Antares	113 07.0	S 26 22.1
	17	87 49.9	71 23.3	22.2	195 14.9	56.3	267 45.0	40.8	62 08.9	14.4					
	18	102 52.3	86 27.2	N15 21.4	210 16.7	S21 56.4	282 47.8	N 1 40.9	77 11.0	N 8 14.5			Arcturus	146 25.8	N 19 20.3
	19	117 54.8	101 31.0	20.7	225 18.6	56.5	297 50.5	41.1	92 13.2	14.7			Atria	108 38.7	S 68 58.4
	20	132 57.3	116 34.8	19.9	240 20.4	56.7	312 53.3	41.2	107 15.4	14.8			Avior	234 31.7	S 59 24.8
	21	147 59.7	131 38.6	.. 19.2	255 22.3	.. 56.8	327 56.0	.. 41.3	122 17.6	.. 14.9			Bellatrix	279 07.9	N 6 19.4
	22	163 02.2	146 42.4	18.4	270 24.1	56.9	342 58.7	41.4	137 19.7	15.0			Beteigeuse	271 37.5	N 7 24.2
	23	178 04.7	161 46.3	17.7	285 25.9	57.1	358 01.5	41.5	152 21.9	15.1					
SATURDAY	00	193 07.1	176 50.1	N15 16.9	300 27.8	S21 57.2	13 04.2	N 1 41.7	167 24.1	N 8 15.2			Canopus	264 11.1	S 52 40.8
	01	208 09.6	191 53.9	16.1	315 29.6	57.3	28 07.0	41.8	182 26.2	15.4			Capella	281 24.0	N 45 58.4
	02	223 12.1	206 57.7	15.4	330 31.5	57.5	43 09.7	41.9	197 28.4	15.5			Deneb	49 54.5	N 45 09.8
	03	238 14.5	222 01.6	.. 14.6	345 33.3	.. 57.6	58 12.5	.. 42.0	212 30.6	.. 15.6			Denebola	183 07.3	N 14 44.5
	04	253 17.0	237 05.4	13.8	0 35.1	57.7	73 15.2	42.1	227 32.7	15.7			Diphda	349 29.6	S 18 09.4
	05	268 19.4	252 09.2	13.1	15 37.0	57.9	88 17.9	42.2	242 34.9	15.8					
	06	283 21.9	267 13.0	N15 12.3	30 38.8	S21 58.0	103 20.7	N 1 42.4	257 37.1	N 8 15.9			Dubhe	194 31.5	N 61 55.2
	07	298 24.4	282 16.9	11.5	45 40.7	58.1	118 23.4	42.5	272 39.3	16.0			Elmath	278 55.0	N 28 35.1
	08	313 26.8	297 20.7	10.8	60 42.5	58.3	133 26.2	42.6	287 41.4	16.2			Eltanin	91 01.5	N 51 29.0
	09	328 29.3	312 24.5	.. 10.0	75 44.4	.. 58.4	148 28.9	.. 42.7	302 43.6	.. 16.3			Enif	34 20.1	N 9 43.7
	10	343 31.8	327 28.4	09.2	90 46.2	58.5	163 31.6	42.8	317 45.8	16.4			Fomalhaut	16 00.9	S 29 47.2
	11	358 34.2	342 32.2	08.4	105 48.1	58.7	178 34.4	42.9	332 47.9	16.5					
	12	13 36.7	357 36.0	N15 07.6	120 49.9	S21 58.8	193 37.1	N 1 43.1	347 50.1	N 8 16.6			Gacrux	172 37.9	S 56 56.6
	13	28 39.2	12 39.9	06.8	135 51.8	58.9	208 39.9	43.2	2 52.3	16.7			Gienah	176 26.4	S 17 22.4
	14	43 41.6	27 43.7	06.1	150 53.6	59.1	223 42.6	43.3	17 54.4	16.8			Hadar	149 35.1	S 60 13.6
	15	58 44.1	42 47.5	.. 05.3	165 55.5	.. 59.2	238 45.3	.. 43.4	32 56.6	.. 17.0			Hamal	328 38.8	N 23 19.0
	16	73 46.6	57 51.4	04.5	180 57.4	59.3	253 48.1	43.5	47 58.8	17.1			Kaus Aust.	84 28.0	N 34 24.1
	17	88 49.0	72 55.2	03.7	195 59.2	59.5	268 50.8	43.6	63 00.9	17.2					
	18	103 51.5	87 59.0	N15 02.9	211 01.1	S21 59.6	283 53.6	N 1 43.8	78 03.1	N 8 17.3			Kochab	137 16.9	N 74 16.6
	19	118 53.9	103 02.9	02.1	226 02.9	59.7	298 56.3	43.9	93 05.3	17.4			Markab	14 11.9	N 15 02.2
	20	133 56.4	118 06.7	01.3	241 04.8	21 59.9	313 59.0	44.0	108 07.4	17.5			Menkar	314 50.2	N 3 58.2
	21	148 58.9	133 10.5	15 00.5	256 06.6	22 00.0	329 01.8	.. 44.1	123 09.6	.. 17.6			Menkent	148 46.7	S 36 13.3
	22	164 01.3	148 14.4	14 59.7	271 08.5	00.1	344 04.5	44.2	138 11.8	17.8			Miaplacidus	221 46.8	S 69 35.6
	23	179 03.8	163 18.2	58.9	286 10.4	00.3	359 07.3	44.3	153 14.0	17.9					
SUNDAY	00	194 06.3	178 22.0	N14 58.1	301 12.2	S22 00.4	14 10.0	N 1 44.5	168 16.1	N 8 18.0			Mirfak	309 28.8	N 49 45.4
	01	209 08.7	193 25.9	57.3	316 14.1	00.5	29 12.7	44.6	183 18.3	18.1			Nunki	76 39.6	S 26 20.3
	02	224 11.2	208 29.7	56.4	331 16.0	00.7	44 15.5	44.7	198 20.5	18.2			Pecock	54 11.7	S 56 50.1
	03	239 13.7	223 33.6	.. 55.6	346 17.8	.. 00.8	59 18.2	.. 44.8	213 22.6	.. 18.3			Pollux	244 08.4	N 28 06.3
	04	254 16.1	238 37.4	54.8	1 19.7	00.9	74 21.0	44.9	228 24.8	18.4			Procyon	245 34.6	N 5 18.3
	05	269 18.6	253 41.2	54.0	16 21.6	01.0	89 23.7	45.0	243 27.0	18.6					
	06	284 21.1	268 45.1	N14 53.2	31 23.4	S22 01.2	104 26.4	N 1 45.2	258 29.1	N 8 18.7			Rasalhague	96 37.3	N 12 34.5
	07	299 23.5	283 48.9	52.4	46 25.3	01.3	119 29.2	45.3	273 31.3	18.8			Regulus	208 18.7	N 12 07.1
	08	314 26.0	298 52.7	51.5	61 27.2	01.4	134 31.9	45.4	288 33.5	18.9			Rigel	281 44.3	S 8 14.2
	09	329 28.4	313 56.6	.. 50.7	76 29.0	.. 01.6	149 34.7	.. 45.5	303 35.6	.. 19.0			Rigel Kent.	140 37.0	S 60 42.5
	10	344 30.9	329 00.4	49.9	91 30.9	01.7	164 37.4	45.6	318 37.8	19.1			Sabik	102 50.7	S 15 41.5
	11	359 33.4	344 04.2	49.1	106 32.8	01.8	179 40.1	45.7	333 40.0	19.2					
	12	14 35.8	359 08.1	N14 48.2	121 34.7	S22 02.0	194 42.9	N 1 45.8	348 42.1	N 8 19.4			Schedar	350 19.6	N 56 22.1
	13	29 38.3	14 11.9	47.4	136 36.5	02.1	209 45.6	46.0	3 44.3	19.5			Shaula	97 07.1	S 37 05.1
	14	44 40.8	29 15.8	46.6	151 38.4	02.2	224 48.3	46.1	18 46.5	19.6			Sirius	259 03.2	S 16 40.4
	15	59 43.2	44 19.6	.. 45.7	166 40.3	.. 02.4	239 51.1	.. 46.2	33 48.6	.. 19.7			Spica	159 06.2	S 11 00.2
	16	74 45.7	59 23.4	44.9	181 42.2	02.5	254 53.8	46.3	48 50.8	19.8			Suhail	223 16.9	S 43 18.6
	17	89 48.2	74 27.3	44.1	196 44.1	02.6	269 56.6	46.4	63 53.0	19.9					
	18	104 50.6	89 31.1	N14 43.2	211 45.9	S22 02.7	284 59.3	N 1 46.5	78 55.1	N 8 20.0			Vega	81 01.5	N 38 44.8
	19	119 53.1	104 35.0	42.4	226 47.8	02.9	300 02.0	46.6	93 57.3	20.2			Zuben'ubi	137 42.2	S 15 55.1
	20	134 55.6	119 38.8	41.5	241 49.7	03.0	315 04.8	46.8	108 59.5	20.3				S.H.A.	Mer. Pass.
	21	149 58.0	134 42.6	.. 40.7	256 51.6	.. 03.1	330 07.5	.. 46.9	124 01.6	.. 20.4			Venus	343 43.0	12 10
	22	165 00.5	149 46.5	39.9	271 53.5	03.3	345 10.2	47.0	139 03.8	20.5			Mars	107 20.7	3 58
	23	180 02.9	164 50.3	39.0	286 55.4	03.4	0 13.0	47.1	154 06.0	20.6			Jupiter	179 57.1	23 03
													Saturn	334 17.0	12 49
Mer. Pass. 11 05.7		v 3.8	d 0.8		v 1.9	d 0.1		v 2.7	d 0.1		v 2.2	d 0.1			

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise						
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.		Naut.	Civil		4	5	6	7			
d	h	°	'	°	'	°	'	°	'	°	'	h	m	h	m	h	m	h	m
4	00	179	12.4 N	5 32.5	345	22.4	10.7	S 13	49.6	15.1	58.9	N 72	00 23	03 17	04 36	■	■	■	■
	01	194	12.6	33.4	359	52.1	10.6	14	04.7	15.0	58.9	N 70	01 48	03 37	04 46	■	■	■	■
	02	209	12.8	34.4	14	21.7	10.5	14	19.7	14.9	58.9	68	02 24	03 52	04 53	23 57	■	■	■
	03	224	13.0	35.4	28	51.2	10.4	14	34.6	14.9	58.9	66	02 49	04 05	05 00	23 18	■	■	■
	04	239	13.2	36.3	43	20.6	10.3	14	49.5	14.8	59.0	64	03 08	04 15	05 05	22 51	25 23	01 23	■
	05	254	13.4	37.3	57	49.9	10.2	15	04.3	14.7	59.0	62	03 23	04 23	05 10	22 31	24 39	00 39	03 15
	06	269	13.5 N	5 38.2	72	19.1	10.1	S 15	19.0	14.7	59.0	60	03 36	04 31	05 14	22 14	24 09	00 09	02 07
	07	284	13.7	39.2	86	48.2	10.0	15	33.7	14.5	59.0	N 58	03 46	04 37	05 18	22 00	23 47	25 32	01 32
	08	299	13.9	40.1	101	17.2	9.9	15	48.2	14.5	59.0	56	03 55	04 43	05 21	21 48	23 29	25 07	01 07
	09	314	14.1	41.1	115	46.1	9.8	16	02.7	14.5	59.1	54	04 03	04 47	05 24	21 38	23 14	24 47	00 47
FRI	10	329	14.3	42.0	130	14.9	9.8	16	17.2	14.3	59.1	52	04 10	04 52	05 26	21 29	23 01	24 30	00 30
	11	344	14.5	43.0	144	43.7	9.6	16	31.5	14.2	59.1	50	04 16	04 56	05 29	21 21	22 49	24 15	00 15
	12	359	14.6 N	5 43.9	159	12.3	9.5	S 16	45.7	14.2	59.1	45	04 29	05 04	05 34	21 03	22 26	23 46	24 58
	13	14	14.8	44.9	173	40.8	9.4	16	59.9	14.1	59.1	N 40	04 38	05 11	05 38	20 49	22 07	23 23	24 34
	14	29	15.0	45.8	188	09.2	9.4	17	14.0	14.0	59.1	35	04 46	05 16	05 42	20 37	21 51	23 04	24 13
	15	44	15.2	46.8	202	37.6	9.2	17	28.0	13.9	59.1	30	04 53	05 21	05 45	20 27	21 37	22 48	23 56
	16	59	15.4	47.7	217	05.8	9.1	17	41.9	13.8	59.2	20	05 02	05 28	05 50	20 09	21 14	22 21	23 27
	17	74	15.6	48.7	231	33.9	9.0	17	55.7	13.7	59.2	N 10	05 09	05 34	05 55	19 54	20 54	21 58	23 02
	18	89	15.7 N	5 49.6	246	01.9	8.9	S 18	09.4	13.6	59.2	0	05 15	05 39	06 00	19 40	20 36	21 36	22 39
	19	104	15.9	50.6	260	29.8	8.8	18	23.0	13.5	59.2	S 10	05 18	05 43	06 04	19 26	20 18	21 15	22 16
20	119	16.1	51.6	274	57.6	8.7	18	36.5	13.4	59.2	20	05 20	05 46	06 08	19 11	19 58	20 52	21 51	
21	134	16.3	52.5	289	25.3	8.6	18	49.9	13.3	59.2	30	05 21	05 49	06 13	18 54	19 36	20 25	21 23	
22	149	16.5	53.5	303	52.9	8.5	19	03.2	13.2	59.2	35	05 21	05 50	06 16	18 45	19 23	20 10	21 06	
23	164	16.7	54.4	318	20.4	8.4	19	16.4	13.1	59.3	40	05 20	05 52	06 19	18 34	19 08	19 51	20 46	
5	00	179	16.8 N	5 55.4	332	47.8	8.2	S 19	29.5	13.0	59.3	45	05 19	05 53	06 22	18 21	18 50	19 30	20 22
01	194	17.0	56.3	347	15.0	8.2	19	42.5	12.9	59.3	S 50	05 17	05 54	06 26	18 05	18 29	19 03	19 51	
02	209	17.2	57.3	1	42.2	8.0	19	55.4	12.8	59.3	52	05 16	05 55	06 28	17 58	18 19	18 49	19 36	
03	224	17.4	58.2	16	09.2	8.0	20	08.2	12.6	59.3	54	05 14	05 55	06 30	17 50	18 07	18 34	19 18	
04	239	17.6	5 59.2	30	36.2	7.8	20	20.8	12.6	59.3	56	05 12	05 56	06 33	17 41	17 54	18 16	18 56	
05	254	17.7	6 00.1	45	03.0	7.8	20	33.4	12.4	59.3	58	05 11	05 56	06 35	17 31	17 39	17 55	18 29	
06	269	17.9 N	6 01.1	59	29.8	7.6	S 20	45.8	12.3	59.3	S 60	05 08	05 56	06 38	17 19	17 21	17 28	17 50	
07	284	18.1	02.0	73	56.4	7.5	20	58.1	12.2	59.3	Lat.	Sun-set	Twilight		Moonset				
08	299	18.3	03.0	88	22.9	7.4	21	10.3	12.0	59.4			Civil	Naut.	4	5	6	7	
09	314	18.5	03.9	102	49.3	7.3	21	22.3	12.0	59.4	°	h m	h m	h m	h m	h m	h m	h m	
10	329	18.7	04.8	117	15.6	7.2	21	34.3	11.8	59.4	N 72	19 33	20 53	///	03 27	■	■	■	
11	344	18.8	05.8	131	41.8	7.1	21	46.1	11.6	59.4	N 70	19 23	20 32	22 27	03 58	■	■	■	
12	359	19.0 N	6 06.7	146	07.9	7.0	S 21	57.7	11.6	59.4	68	19 15	20 16	21 47	04 20	03 29	■	■	
13	14	19.2	07.7	160	33.9	6.8	22	09.3	11.4	59.4	66	19 08	20 04	21 21	04 38	04 09	■	■	
14	29	19.4	08.6	174	59.7	6.8	22	20.7	11.2	59.4	64	19 02	19 53	21 01	04 53	04 37	04 04	■	
15	44	19.6	09.6	189	25.5	6.6	22	31.9	11.2	59.4	62	18 57	19 44	20 45	05 05	04 58	04 49	04 20	
16	59	19.8	10.5	203	51.1	6.6	22	43.1	11.0	59.4	60	18 53	19 37	20 32	05 16	05 16	05 19	05 29	
17	74	19.9	11.5	218	16.7	6.4	22	54.1	10.8	59.4	N 58	18 49	19 30	20 21	05 25	05 31	05 41	06 04	
18	89	20.1 N	6 12.4	232	42.1	6.4	S 23	04.9	10.7	59.4	56	18 46	19 25	20 12	05 34	05 44	06 00	06 29	
19	104	20.3	13.4	247	07.5	6.2	23	15.6	10.6	59.5	54	18 43	19 19	20 04	05 41	05 55	06 16	06 50	
20	119	20.5	14.3	261	32.7	6.1	23	26.2	10.4	59.5	52	18 40	19 15	19 57	05 47	06 05	06 30	07 07	
21	134	20.7	15.3	275	57.8	6.0	23	36.6	10.3	59.5	50	18 38	19 11	19 51	05 53	06 14	06 42	07 22	
22	149	20.8	16.2	290	22.8	6.0	23	46.9	10.1	59.5	45	18 32	19 02	19 38	06 06	06 33	07 07	07 52	
23	164	21.0	17.2	304	47.8	5.8	23	57.0	10.0	59.5	N 40	18 28	18 56	19 28	06 17	06 48	07 27	08 15	
6	00	179	21.2 N	6 18.1	319	12.6	5.7	S 24	07.0	9.8	59.5	35	18 24	18 50	19 20	06 26	07 01	07 43	08 34
01	194	21.4	19.1	333	37.3	5.6	24	16.8	9.7	59.5	30	18 21	18 45	19 14	06 34	07 13	07 58	08 51	
02	209	21.6	20.0	348	01.9	5.5	24	26.5	9.5	59.5	20	18 15	18 38	19 03	06 49	07 32	08 23	09 19	
03	224	21.7	20.9	2	26.4	5.4	24	36.0	9.4	59.5	N 10	18 10	18 32	18 56	07 01	07 50	08 44	09 43	
04	239	21.9	21.9	16	50.8	5.3	24	45.4	9.2	59.5	0	18 06	18 27	18 51	07 13	08 06	09 04	10 06	
05	254	22.1	22.8	31	15.1	5.2	24	54.6	9.0	59.5	S 10	18 02	18 23	18 47	07 24	08 22	09 24	10 28	
06	269	22.3 N	6 23.8	45	39.3	5.2	S 25	03.6	8.9	59.5	20	17 57	18 19	18 45	07 37	08 40	09 46	10 53	
07	284	22.5	24.7	60	03.5	5.0	25	12.5	8.7	59.5	30	17 52	18 16	18 44	07 51	09 00	10 11	11 21	
08	299	22.6	25.7	74	27.5	4.9	25	21.2	8.5	59.5	35	17 49	18 15	18 44	08 00	09 12	10 26	11 38	
09	314	22.8	26.6	88	51.4	4.9	25	29.7	8.4	59.5	40	17 46	18 13	18 45	08 09	09 26	10 43	11 57	
10	329	23.0	27.6	103	15.3	4.7	25	38.1	8.2	59.5	45	17 43	18 12	18 46	08 21	09 42	11 04	12 21	
11	344	23.2	28.5	117	39.0	4.7	25	46.3	8.0	59.5	S 50	17 38	18 11	18 48	08 35	10 02	11 30	12 51	
12	359	23.4 N	6 29.4	132	02.7	4.5	S 25	54.3	7.8	59.5	52	17 36	18 10	18 49	08 41	10 12	11 43	13 07	
13	14	23.5	30.4	146	26.2	4.5	26	02.1	7.7	59.5	54	17 34	18 09	18 50	08 48	10 23	11 58	13 24	
14	29	23.7	31.3	160	49.7	4.4	26												

		ARIES		VENUS -3-2		MARS -0-4		JUPITER -2-0		SATURN +0-7		STARS			
G.M.T.		G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d	h														
MONDAY	7 00	195 05.4	179 54.2	N14 38.2	301 57.2	S22 03.5	15 15.7	N 1 47.2	169 08.2	N 8 20.7	Acamar	315 43.8	S 40 25.7		
	01	210 07.9	194 58.0	37.3	316 59.1	03.6	30 18.5	47.3	184 10.3	20.9	Achernar	335 51.8	S 57 23.6		
	02	225 10.3	210 01.8	36.4	332 01.0	03.8	45 21.2	47.5	199 12.5	21.0	Acrux	173 46.4	S 62 55.9		
	03	240 12.8	225 05.7	35.6	347 02.9	03.9	60 23.9	47.6	214 14.7	21.1	Adhara	255 38.8	S 28 55.9		
	04	255 15.3	240 09.5	34.7	2 04.8	04.0	75 26.7	47.7	229 16.8	21.2	Aldebaran	291 27.9	N 16 27.0		
	05	270 17.7	255 13.3	33.9	17 06.7	04.2	90 29.4	47.8	244 19.0	21.3					
	06	285 20.2	270 17.2	N14 33.0	32 08.6	S22 04.3	105 32.1	N 1 47.9	259 21.2	N 8 21.4	Alioth	166 49.0	N 56 07.5		
	07	300 22.7	285 21.0	32.2	47 10.5	04.4	120 34.9	48.0	274 23.3	21.5	Alkaid	153 24.4	N 49 27.8		
	08	315 25.1	300 24.9	31.3	62 12.4	04.6	135 37.6	48.1	289 25.5	21.7	Al Na'ir	28 25.6	S 47 06.6		
	09	330 27.6	315 28.7	30.4	77 14.3	04.7	150 40.3	48.3	304 27.7	21.8	Alnilam	276 20.4	S 1 13.2		
	10	345 30.1	330 32.5	29.6	92 16.2	04.8	165 43.1	48.4	319 29.8	21.9	Alphard	218 28.7	S 8 31.5		
	11	0 32.5	345 36.4	28.7	107 18.0	04.9	180 45.8	48.5	334 32.0	22.0					
	12	15 35.0	0 40.2	N14 27.8	122 19.9	S22 05.1	195 48.5	N 1 48.6	349 34.2	N 8 22.1	Alphecca	126 38.9	N 26 48.7		
	13	30 37.4	15 44.0	27.0	137 21.8	05.2	210 51.3	48.7	4 36.3	22.2	Alpheratz	358 18.5	N 28 55.1		
	14	45 39.9	30 47.9	26.1	152 23.7	05.3	225 54.0	48.8	19 38.5	22.3	Altair	62 40.8	N 8 46.8		
	15	60 42.4	45 51.7	25.2	167 25.6	05.5	240 56.7	48.9	34 40.7	22.5	Ankaa	353 48.7	S 42 28.4		
	16	75 44.8	60 55.5	24.3	182 27.5	05.6	255 59.5	49.1	49 42.8	22.6	Antares	113 07.0	S 26 22.1		
	17	90 47.3	75 59.4	23.5	197 29.5	05.7	271 02.2	49.2	64 45.0	22.7					
	18	105 49.8	91 03.2	N14 22.6	212 31.4	S22 05.8	286 04.9	N 1 49.3	79 47.2	N 8 22.8	Arcturus	146 25.8	N 19 20.3		
	19	120 52.2	106 07.0	21.7	227 33.3	06.0	301 07.7	49.4	94 49.3	22.9	Atria	108 38.7	S 68 58.4		
	20	135 54.7	121 10.9	20.8	242 35.2	06.1	316 10.4	49.5	109 51.5	23.0	Avior	234 31.7	S 59 24.8		
	21	150 57.2	136 14.7	19.9	257 37.1	06.2	331 13.1	49.6	124 53.7	23.1	Bellatrix	279 08.0	N 6 19.4		
	22	165 59.6	151 18.5	19.1	272 39.0	06.4	346 15.9	49.7	139 55.8	23.3	Betelgeuse	271 37.5	N 7 24.2		
23	181 02.1	166 22.4	18.2	287 40.9	06.5	1 18.6	49.8	154 58.0	23.4						
TUESDAY	8 00	196 04.6	181 26.2	N14 17.3	302 42.8	S22 06.6	16 21.3	N 1 50.0	170 00.2	N 8 23.5	Canopus	264 11.1	S 52 40.8		
	01	211 07.0	196 30.0	16.4	317 44.7	06.7	31 24.1	50.1	185 02.3	23.6	Capella	281 24.0	N 45 58.4		
	02	226 09.5	211 33.9	15.5	332 46.6	06.9	46 26.8	50.2	200 04.5	23.7	Deneb	49 54.5	N 45 09.8		
	03	241 11.9	226 37.7	14.6	347 48.5	07.0	61 29.5	50.3	215 06.7	23.8	Denebola	183 07.3	N 14 44.5		
	04	256 14.4	241 41.5	13.7	2 50.4	07.1	76 32.3	50.4	230 08.8	24.0	Diphda	349 29.5	S 18 09.4		
	05	271 16.9	256 45.3	12.8	17 52.4	07.3	91 35.0	50.5	245 11.0	24.1					
	06	286 19.3	271 49.2	N14 11.9	32 54.3	S22 07.4	106 37.7	N 1 50.6	260 13.2	N 8 24.2	Dubhe	194 31.5	N 61 55.2		
	07	301 21.8	286 53.0	11.0	47 56.2	07.5	121 40.5	50.7	275 15.3	24.3	Elnath	278 55.0	N 28 35.1		
	08	316 24.3	301 56.8	10.1	62 58.1	07.6	136 43.2	50.9	290 17.5	24.4	Eltanin	91 01.5	N 51 29.0		
	09	331 26.7	317 00.6	09.2	78 00.0	07.8	151 45.9	51.0	305 19.7	24.5	Enif	34 20.1	N 9 43.7		
	10	346 29.2	332 04.5	08.3	93 02.0	07.9	166 48.7	51.1	320 21.8	24.6	Fomalhaut	16 00.9	S 29 47.2		
	11	1 31.7	347 08.3	07.4	108 03.9	08.0	181 51.4	51.2	335 24.0	24.8					
	12	16 34.1	2 12.1	N14 06.5	123 05.8	S22 08.1	196 54.1	N 1 51.3	350 26.2	N 8 24.9	Gacrux	172 37.9	S 56 56.6		
	13	31 36.6	17 15.9	05.6	138 07.7	08.3	211 56.9	51.4	5 28.3	25.0	Gienah	176 26.4	S 17 22.4		
	14	46 39.1	32 19.8	04.7	153 09.6	08.4	226 59.6	51.5	20 30.5	25.1	Hadar	149 35.1	S 60 13.6		
	15	61 41.5	47 23.6	03.8	168 11.6	08.5	242 02.3	51.6	35 32.7	25.2	Hamal	328 38.8	N 23 19.0		
	16	76 44.0	62 27.4	02.9	183 13.5	08.6	257 05.1	51.7	50 34.8	25.3	Kaus Aust.	84 27.9	S 34 24.1		
	17	91 46.4	77 31.2	02.0	198 15.4	08.8	272 07.8	51.9	65 37.0	25.4					
	18	106 48.9	92 35.0	N14 01.1	213 17.3	S22 08.9	287 10.5	N 1 52.0	80 39.2	N 8 25.6	Kochab	137 16.9	N 74 16.6		
	19	121 51.4	107 38.9	14 00.2	228 19.3	09.0	302 13.3	52.1	95 41.3	25.7	Markab	14 11.9	N 15 02.2		
	20	136 53.8	122 42.7	13 59.2	243 21.2	09.2	317 16.0	52.2	110 43.5	25.8	Menkar	314 50.2	N 3 58.2		
	21	151 56.3	137 46.5	58.3	258 23.1	09.3	332 18.7	52.3	125 45.7	25.9	Menkent	148 46.7	S 36 13.3		
	22	166 58.8	152 50.3	57.4	273 25.1	09.4	347 21.4	52.4	140 47.8	26.0	Miaplacidus	221 46.8	S 69 35.6		
23	182 01.2	167 54.1	56.5	288 27.0	09.5	2 24.2	52.5	155 50.0	26.1						
WEDNESDAY	9 00	197 03.7	182 58.0	N13 55.6	303 28.9	S22 09.7	17 26.9	N 1 52.6	170 52.2	N 8 26.2	Mirfak	309 28.8	N 49 45.3		
	01	212 06.2	198 01.8	54.7	318 30.9	09.8	32 29.6	52.7	185 54.3	26.4	Nunki	76 39.6	S 26 20.3		
	02	227 08.6	213 05.6	53.7	333 32.8	09.9	47 32.4	52.9	200 56.5	26.5	Peacock	54 11.6	S 56 50.0		
	03	242 11.1	228 09.4	52.8	348 34.7	10.0	62 35.1	53.0	215 58.7	26.6	Pollux	244 08.4	N 28 06.3		
	04	257 13.6	243 13.2	51.9	3 36.7	10.2	77 37.8	53.1	231 00.8	26.7	Procyon	245 34.6	N 5 18.3		
	05	272 16.0	258 17.0	51.0	18 38.6	10.3	92 40.6	53.2	246 03.0	26.8					
	06	287 18.5	273 20.8	N13 50.0	33 40.6	S22 10.4	107 43.3	N 1 53.3	261 05.2	N 8 26.9	Rasalhague	96 37.3	N 12 34.5		
	07	302 20.9	288 24.6	49.1	48 42.5	10.5	122 46.0	53.4	276 07.3	27.0	Regulus	208 18.7	N 12 07.1		
	08	317 23.4	303 28.4	48.2	63 44.4	10.7	137 48.7	53.5	291 09.5	27.2	Rigel	281 44.3	S 8 14.2		
	09	332 25.9	318 32.2	47.2	78 46.4	10.8	152 51.5	53.6	306 11.7	27.3	Rigel Kent.	140 37.0	S 60 42.5		
	10	347 28.3	333 36.0	46.3	93 48.3	10.9	167 54.2	53.7	321 13.8	27.4	Sabik	102 50.6	S 15 41.5		
	11	2 30.8	348 39.8	45.4	108 50.3	11.0	182 56.9	53.9	336 16.0	27.5					
	12	17 33.3	3 43.6	N13 44.5	123 52.2	S22 11.2	197 59.7	N 1 54.0	351 18.2	N 8 27.6	Schedar	350 19.5	N 56 22.1		
	13	32 35.7	18 47.4	43.5	138 54.2	11.3	213 02.4	54.1	6 20.3	27.7	Shaula	97 07.1	S 37 05.1		
	14	47 38.2	33 51.2	42.6	153 56.1	11.4	228 05.1	54.2	21 22.5	27.8	Sirius	259 03.2	S 16 40.4		
	15	62 40.7	48 55.0	41.6	168 58.1	11.5	243 07.8	54.3	36 24.7	28.0	Spica	159 06.1	S 11 00.2		
	16	77 43.1	63 58.8	40.7	184 00.0	11.7	258 10.6	54.4	51 26.8	28.1	Suhail	223 17.0	S 43 18.6		
	17	92 45.6	79 02.6	39.8	199 02.0	11.8	273 13.3	54.5	66 29.0	28.2					
	18	107 48.0	94 06.4	N13 38.8	214 03.9	S22 11.9	288 16.0	N 1 54.6	81 31.2	N 8 28.3	Vega	81 01.5	N 38 44.8		
	19	122 50.5	109 10.2	37.9	229 05.9	12.0	303 18.8	54.7	96 33.3	28.4	Zuben'ubi	137 42.1	S 15 55.1		
	20	137 53.0	124 14.0	36.9	244 07.8	12.2	318 21.5	54.8	111 35.5	28.5					
	21	152 55.4	139 17.8	36.0	259 09.8	12.3	333 24.2	55.0	126 37.7	28.6					
	22	167 57.9	154 21.6	35.1	274 11.7	12.4	348 26.9	55.1	141 39.8	28.8	Venus	345 21.6	11 51		
23	183 00.4	169 25.4	34.1	289 13.7	12.5	3 29.7	55.2	156 42.0	28.9	Mars	106 38.2	3 49			
											Jupiter	180 16.7	22 50		
											Saturn	333 55.6	12 38		
Mer. Pass. 10 53-9		v 3.8	d 0.9		v 1.9	d 0.1	v 2.7	d 0.1	v 2.2	d 0.1					
			</												

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise										
		G.H.A.	Dec.	G.H.A.	v	Dec.	d		H.P.	Naut.		Civil	7	8	9	10						
d	h	°	'	°	'	°	'	'	h	m	h	m	h	m	h	m	h	m				
MONDAY	7 00	179	25.5 N	6	40.8	304	40.2	3.6	S	27	16.8	5.7	59.6	N 70	01 13	03 20	04 31					
	01	194	25.7		41.7	319	02.8	3.6		27	22.5	5.5	59.6	68	02 02	03 38	04 41					
	02	209	25.9		42.6	333	25.4	3.5		27	28.0	5.3	59.6	66	02 32	03 52	04 48					
	03	224	26.0		43.6	347	47.9	3.5		27	33.3	5.1	59.6	64	02 53	04 03	04 55					
	04	239	26.2		44.5	2	10.4	3.4		27	38.4	4.9	59.6	62	03 10	04 13	05 00	03 15	05 32			
	05	254	26.4		45.5	16	32.8	3.3		27	43.3	4.7	59.6	60	03 24	04 21	05 05	02 07	04 21			
	06	269	26.6 N	6	46.4	30	55.1	3.3	S	27	48.0	4.5	59.6	N 58	03 36	04 28	05 09	01 32	02 57			
	07	284	26.7		47.3	45	17.4	3.3		27	52.5	4.4	59.6	56	03 46	04 34	05 13	01 07	02 27			
	08	299	26.9		48.3	59	39.7	3.2		27	56.9	4.1	59.6	54	03 54	04 40	05 16	00 47	02 04			
	09	314	27.1		49.2	74	01.9	3.1		28	01.0	4.0	59.5	52	04 02	04 44	05 20	00 30	01 46			
	10	329	27.3		50.2	88	24.0	3.2		28	05.0	3.7	59.5	50	04 09	04 49	05 22	00 15	01 30			
	11	344	27.5		51.1	102	46.2	3.0		28	08.7	3.6	59.5	45	04 22	04 58	05 28	24 58	00 58			
	12	359	27.6 N	6	52.0	117	08.2	3.1	S	28	12.3	3.3	59.5	N 40	04 33	05 06	05 34	24 34	00 34			
	13	14	27.8		53.0	131	30.3	3.0		28	15.6	3.2	59.5	35	04 42	05 12	05 38	24 13	00 13			
	14	29	28.0		53.9	145	52.3	2.9		28	18.8	2.9	59.5	30	04 49	05 17	05 42	23 56	24 58			
	15	44	28.2		54.9	160	14.2	3.0		28	21.7	2.8	59.5	20	05 00	05 26	05 48	23 27	24 29			
	16	59	28.3		55.8	174	36.2	2.9		28	24.5	2.5	59.5	N 10	05 08	05 32	05 54	23 02	24 05			
	17	74	28.5		56.7	188	58.1	2.9		28	27.0	2.4	59.5	0	05 14	05 38	05 59	22 39	23 43			
	18	89	28.7 N	6	57.7	203	20.0	2.8	S	28	29.4	2.1	59.5	S 10	05 18	05 43	06 04	22 16	23 20			
	19	104	28.9		58.6	217	41.8	2.9		28	31.5	2.0	59.5	20	05 21	05 47	06 09	21 51	22 56			
	20	119	29.0		59.6	232	03.7	2.8		28	33.5	1.7	59.5	30	05 23	05 51	06 15	21 23	22 28			
	21	134	29.2		00.5	246	25.5	2.8		28	35.2	1.6	59.5	35	05 23	05 53	06 18	21 06	22 11			
	22	149	29.4		01.4	260	47.3	2.8		28	36.8	1.3	59.5	40	05 23	05 55	06 22	20 46	21 51			
	23	164	29.6		02.4	275	09.1	2.8		28	38.1	1.1	59.5	45	05 23	05 56	06 26	20 22	21 28			
TUESDAY	8 00	179	29.8 N	7	03.3	289	30.9	2.8	S	28	39.2	1.0	59.5	S 50	05 21	05 59	06 31	19 51	20 57			
	01	194	29.9		04.2	303	52.7	2.8		28	40.2	0.7	59.5	52	05 20	06 00	06 33	19 36	20 42			
	02	209	30.1		05.2	318	14.5	2.8		28	40.9	0.5	59.5	54	05 20	06 00	06 36	19 18	20 24			
	03	224	30.3		06.1	332	36.3	2.8		28	41.4	0.4	59.5	56	05 18	06 01	06 39	18 56	20 03			
	04	239	30.5		07.0	346	58.1	2.8		28	41.8	0.1	59.5	58	05 17	06 02	06 42	18 29	19 35			
	05	254	30.6		08.0	1	19.9	2.8		28	41.9	0.1	59.5	S 60	05 15	06 03	06 45	17 50	18 57			
	06	269	30.8 N	7	08.9	15	41.7	2.8	S	28	41.8	0.3	59.5									
	07	284	31.0		09.9	30	03.5	2.9		28	41.5	0.4	59.5	Lat.	Sun-set	Twilight		Moonset				
	08	299	31.2		10.8	44	25.4	2.8		28	41.1	0.7	59.4			Civil	Naut.	7	8	9	10	
	09	314	31.3		11.7	58	47.2	2.9		28	40.4	0.9	59.4	°	h	m	h	m	h	m	h	m
	10	329	31.5		12.7	73	09.1	2.9		28	39.5	1.1	59.4	N 72	19 47	21 13	///	■	■	■	■	
	11	344	31.7		13.6	87	31.0	3.0		28	38.4	1.3	59.4	N 70	19 35	20 48	23 06	■	■	■	■	
	12	359	31.9 N	7	14.5	101	53.0	2.9	S	28	37.1	1.5	59.4	N 70	19 35	20 48	23 06	■	■	■	■	
	13	14	32.0		15.5	116	14.9	3.0		28	35.6	1.7	59.4	68	19 26	20 30	22 09	■	■	■	■	
	14	29	32.2		16.4	130	36.9	3.0		28	33.9	1.9	59.4	66	19 18	20 15	21 37	■	■	■	■	
	15	44	32.4		17.3	144	58.9	3.1		28	32.0	2.0	59.4	64	19 11	20 03	21 14	■	■	■	■	
	16	59	32.6		18.3	159	21.0	3.1		28	30.0	2.3	59.4	62	19 05	19 53	20 56	04 20	■	■	■	■
	17	74	32.7		19.2	173	43.1	3.1		28	27.7	2.5	59.4	60	19 00	19 45	20 42	05 29	06 07	07 40	09 36	
	18	89	32.9 N	7	20.1	188	05.2	3.2	S	28	25.2	2.7	59.4	N 58	18 56	19 38	20 30	06 04	06 52	08 16	09 58	
	19	104	33.1		21.1	202	27.4	3.2		28	22.5	2.9	59.4	56	18 52	19 31	20 20	06 29	07 22	08 41	10 16	
	20	119	33.2		22.0	216	49.7	3.2		28	19.6	3.0	59.4	54	18 48	19 25	20 11	06 50	07 44	09 01	10 32	
	21	134	33.4		22.9	231	11.9	3.4		28	16.6	3.3	59.3	52	18 45	19 20	20 03	07 07	08 03	09 18	10 45	
	22	149	33.6		23.9	245	34.3	3.4		28	13.3	3.5	59.3	50	18 42	19 16	19 56	07 22	08 19	09 33	10 57	
	23	164	33.8		24.8	259	56.7	3.4		28	09.8	3.6	59.3	45	18 36	19 06	19 42	07 52	08 51	10 02	11 21	
WEDNESDAY	9 00	179	33.9 N	7	25.7	274	19.1	3.5	S	28	06.2	3.9	59.3	N 40	18 31	18 59	19 32	08 15	09 15			
	01	194	34.1		26.7	288	41.6	3.6		28	02.3	4.0	59.3	35	18 27	18 52	19 23	08 34	09 35			
	02	209	34.3		27.6	303	04.2	3.6		27	58.3	4.2	59.3	30	18 23	18 47	19 16	08 51	09 53			
	03	224	34.5		28.5	317	26.8	3.7		27	54.1	4.4	59.3	20	18 16	18 38	19 05	09 19	10 22			
	04	239	34.6		29.5	331	49.5	3.8		27	49.7	4.7	59.3	N 10	18 10	18 32	18 56	09 43	10 47			
	05	254	34.8		30.4	346	12.3	3.8		27	45.0	4.7	59.3	0	18 05	18 26	18 50	10 06	11 10			
	06	269	35.0 N	7	31.3	0	35.1	3.9	S	27	40.3	5.0	59.3	S 10	18 00	18 21	18 46	10 28	11 33			
	07	284	35.1		32.2	14	58.0	4.0		27	35.3	5.2	59.3	20	17 55	18 17	18 42	10 53	11 57			
	08	299	35.3		33.2	29	21.0	4.1		27	30.1	5.3	59.2	30	17 49	18 13	18 40	11 21	12 26			
	09	314	35.5		34.1	43	44.1	4.1		27	24.8	5.6	59.2	35	17 45	18 11	18 40	11 38	12 43			
	10	329	35.7		35.0	58	07.2	4.2		27	19.2	5.7	59.2	40	17 42	18 09	18 40	11 57	13 03			
	11	344	35.8		36.0	72	30.4	4.3		27	13.5	5.9	59.2	45	17 37	18 06	18 40	12 21	13 27			
	12	359	36.0 N	7	36.9	86	53.7	4.4	S	27	07.6	6.0	59.2	S 50	17 32	18 04	18 42	12 51	13 58			
	13	14	36.2		37.8	101	17.1	4.5		27	01.6	6.3	59.2	52	17 29	18 03	18 42	13 07	14 13			
	14	29	36.3		38.8	115	40.6	4.5		26	55.3	6.4	59.2	54	17 27	18 02	18 43	13 24	14 31			
	15	44	36.5		39.7	130	04.1	4.7		26	48.9	6.6	59.2	56	17 24	18 01	18 44	13 46	14 53			
	16	59	36.7		40.6	144	27.8	4.7		26	42.3	6.7	59.2	58	17 21	18 00	18 46	14 13	15 20			
	17	74	36.9		41.5	158	51.5	4.8		26	35.6	7.0	59.2	S 60	17 17	17 59	18 47	14 52	15 59			
	18	89	37.0 N	7	42.5	173	15.3	5.0	S	26	28.6	7.1	59.1									
	19	104	37.2		43.4	187	39.3	5.0		26	21.5	7.3	59.1									
	20	119	37.4		44.3	202	03.3	5.1		26	14.2	7.4	59.1									
	21	134	37.5		45.3	216	27.4	5.2		26	06.8	7.6	59.1									
	22	149	37.7		46.2	230	51.6	5.3		25	59.2	7.8	59.1									
	23	164	37.9		47.1	245	15.9	5.4		25	51.4	8.0	59.1									
S.D. 16-0		d	0.9	S.D. 16-2		16-2	16-1															
										SUN		MOON										
										Day	Eqn. of Time	Mer. Pass.	Mer. Upper	Pass. Lower	Age	Phase						
											00 ^h	12 ^h										
											m	s	m	s	m	d						
										7	02 18	02 10	12 02	03 51	16 23	20						
										8	02 01	01 53	12 02	04 54	17 26	21						
										9	01 45	01 36	12 02	05 58	18 28	22						

		ARIES		VENUS -3.2		MARS -0.5		JUPITER -2.0		SATURN +0.6		STARS			
G.M.T.		G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d	h	°	°	°	°	°	°	°	°	°	°	°		°	°
10	00	198 02.8	184 29.2	N 13 33.2	304 15.7	S 22 12.7	18 32.4	N 1 55.3	171 44.2	N 8 29.0			Acamar	315 43.9	S 40 25.7
	01	213 05.3	199 33.0	32.2	319 17.6	12.8	33 35.1	55.4	186 46.3	29.1			Achernar	335 51.8	S 57 23.6
	02	228 07.8	214 36.7	31.3	334 19.6	12.9	48 37.8	55.5	201 48.5	29.2			Acrux	173 46.4	S 62 55.9
	03	243 10.2	229 40.5	30.3	349 21.5	13.0	63 40.6	55.6	216 50.7	29.3			Adhara	255 38.8	S 28 55.9
	04	258 12.7	244 44.3	29.4	4 23.5	13.2	78 43.3	55.7	231 52.8	29.4			Aldebaran	291 27.9	N 16 27.0
	05	273 15.2	259 48.1	28.4	19 25.5	13.3	93 46.0	55.8	246 55.0	29.6					
	06	288 17.6	274 51.9	N 13 27.5	34 27.4	S 22 13.4	108 48.7	N 1 55.9	261 57.2	N 8 29.7			Alloth	166 49.0	N 56 07.5
	07	303 20.1	289 55.6	26.5	49 29.4	13.5	123 51.5	56.0	276 59.3	29.8			Alkaid	153 24.4	N 49 27.4
	08	318 22.5	304 59.4	25.6	64 31.4	13.7	138 54.2	56.2	292 01.5	29.9			Al Na'ir	28 25.6	S 47 06.6
	09	333 25.0	320 03.2	24.6	79 33.3	13.8	153 56.9	56.3	307 03.7	30.0			Alnilam	276 20.4	S 1 13.2
	10	348 27.5	335 07.0	23.6	94 35.3	13.9	168 59.6	56.4	322 05.8	30.1			Alphard	218 28.7	S 8 31.5
	11	3 29.9	350 10.7	22.7	109 37.3	14.0	184 02.4	56.5	337 08.0	30.2					
	12	18 32.4	5 14.5	N 13 21.7	124 39.2	S 22 14.2	199 05.1	N 1 56.6	352 10.2	N 8 30.4			Alphecca	126 38.9	N 26 48.7
	13	33 34.9	20 18.3	20.8	139 41.2	14.3	214 07.8	56.7	7 12.3	30.5			Alpheratz	358 18.5	N 28 55.1
	14	48 37.3	35 22.1	19.8	154 43.2	14.4	229 10.5	56.8	22 14.5	30.6			Altair	62 40.8	N 8 46.8
	15	63 39.8	50 25.8	18.9	169 45.2	14.5	244 13.3	56.9	37 16.7	30.7			Ankaa	353 48.7	S 42 28.4
	16	78 42.3	65 29.6	17.9	184 47.1	14.6	259 16.0	57.0	52 18.8	30.8			Antares	113 07.0	S 26 22.1
	17	93 44.7	80 33.3	16.9	199 49.1	14.8	274 18.7	57.1	67 21.0	30.9					
	18	108 47.2	95 37.1	N 13 16.0	214 51.1	S 22 14.9	289 21.4	N 1 57.2	82 23.2	N 8 31.0			Arcturus	146 25.7	N 19 20.3
	19	123 49.6	110 40.9	15.0	229 53.1	15.0	304 24.2	57.3	97 25.3	31.2			Atria	108 38.6	S 68 58.4
	20	138 52.1	125 44.6	14.0	244 55.1	15.1	319 26.9	57.5	112 27.5	31.3			Avior	234 31.7	S 59 24.8
	21	153 54.6	140 48.4	13.1	259 57.0	15.3	334 29.6	57.6	127 29.6	31.4			Bellatrix	279 08.0	N 6 19.4
	22	168 57.0	155 52.2	12.1	274 59.0	15.4	349 32.3	57.7	142 31.8	31.5			Betelgeuse	271 37.5	N 7 24.2
23	183 59.5	170 55.9	11.1	290 01.0	15.5	4 35.1	57.8	157 34.0	31.6						
11	00	199 02.0	185 59.7	N 13 10.2	305 03.0	S 22 15.6	19 37.8	N 1 57.9	172 36.1	N 8 31.7			Canopus	264 11.1	S 52 40.8
	01	214 04.4	201 03.4	09.2	320 05.0	15.8	34 40.5	58.0	187 38.3	31.8			Capella	281 24.0	N 45 58.3
	02	229 06.9	216 07.2	08.2	335 07.0	15.9	49 43.2	58.1	202 40.5	32.0			Deneb	49 54.5	N 45 09.8
	03	244 09.4	231 10.9	07.2	350 08.9	16.0	64 45.9	58.2	217 42.6	32.1			Denebola	183 07.3	N 14 44.6
	04	259 11.8	246 14.7	06.3	5 10.9	16.1	79 48.7	58.3	232 44.8	32.2			Diphda	349 29.5	S 18 09.4
	05	274 14.3	261 18.4	05.3	20 12.9	16.2	94 51.4	58.4	247 47.0	32.3					
	06	289 16.7	276 22.1	N 13 04.3	35 14.9	S 22 16.4	109 54.1	N 1 58.5	262 49.1	N 8 32.4			Dubhe	194 31.5	N 61 55.2
	07	304 19.2	291 25.9	03.4	50 16.9	16.5	124 56.8	58.6	277 51.3	32.5			Elnath	278 55.0	N 28 35.1
	08	319 21.7	306 29.6	02.4	65 18.9	16.6	139 59.6	58.7	292 53.5	32.6			Eltanin	91 01.4	N 51 29.0
	09	334 24.1	321 33.4	01.4	80 20.9	16.7	155 02.3	58.9	307 55.6	32.8			Enif	34 20.0	N 9 43.7
	10	349 26.6	336 37.1	13 00.4	95 22.9	16.9	170 05.0	59.0	322 57.8	32.9			Fomalhaut	16 00.9	S 29 47.2
	11	4 29.1	351 40.8	12 59.5	110 24.9	17.0	185 07.7	59.1	338 00.0	33.0					
	12	19 31.5	6 44.6	N 12 58.5	125 26.9	S 22 17.1	200 10.4	N 1 59.2	353 02.1	N 8 33.1			Gacrux	172 37.9	S 56 56.6
	13	34 34.0	21 48.3	57.5	140 28.9	17.2	215 13.2	59.3	8 04.3	33.2			Gienah	176 26.4	S 17 22.4
	14	49 36.5	36 52.0	56.5	155 30.9	17.4	230 15.9	59.4	23 06.5	33.3			Hadar	149 35.1	S 60 13.6
	15	64 38.9	51 55.7	55.6	170 32.9	17.5	245 18.6	59.5	38 08.6	33.4			Hamal	328 38.8	N 23 19.0
	16	79 41.4	66 59.5	54.6	185 34.9	17.6	260 21.3	59.6	53 10.8	33.6			Kaus Aust.	84 27.9	S 34 24.1
	17	94 43.9	82 03.2	53.6	200 36.9	17.7	275 24.0	59.7	68 13.0	33.7					
	18	109 46.3	97 06.9	N 12 52.6	215 38.9	S 22 17.8	290 26.8	N 1 59.8	83 15.1	N 8 33.8			Kochab	137 16.9	N 74 16.6
	19	124 48.8	112 10.6	51.6	230 40.9	18.0	305 29.5	1 59.9	98 17.3	33.9			Markab	14 11.9	N 15 02.2
	20	139 51.2	127 14.3	50.7	245 42.9	18.1	320 32.2	2 00.0	113 19.4	34.0			Menkar	314 50.3	N 3 58.2
	21	154 53.7	142 18.1	49.7	260 44.9	18.2	335 34.9	00.1	128 21.6	34.1			Menkent	148 46.7	S 36 13.3
	22	169 56.2	157 21.8	48.7	275 46.9	18.3	350 37.6	00.2	143 23.8	34.2			Miaplacidus	221 46.8	S 69 35.6
23	184 58.6	172 25.5	47.7	290 48.9	18.4	5 40.4	00.3	158 25.9	34.4						
12	00	200 01.1	187 29.2	N 12 46.7	305 50.9	S 22 18.6	20 43.1	N 2 00.4	173 28.1	N 8 34.5			Mirfak	309 28.8	N 49 45.3
	01	215 03.6	202 32.9	45.7	320 52.9	18.7	35 45.8	00.5	188 30.3	34.6			Nunki	76 39.5	S 26 20.3
	02	230 06.0	217 36.6	44.8	335 54.9	18.8	50 48.5	00.7	203 32.4	34.7			Peacock	54 11.6	S 56 50.0
	03	245 08.5	232 40.3	43.8	350 57.0	18.9	65 51.2	00.8	218 34.6	34.8			Pollux	244 08.4	N 28 06.3
	04	260 11.0	247 44.0	42.8	5 59.0	19.1	80 54.0	00.9	233 36.8	34.9			Procyon	245 34.6	N 5 18.3
	05	275 13.4	262 47.7	41.8	21 01.0	19.2	95 56.7	01.0	248 38.9	35.0					
	06	290 15.9	277 51.4	N 12 40.8	36 03.0	S 22 19.3	110 59.4	N 2 01.1	263 41.1	N 8 35.2			Rasalhague	96 37.2	N 12 34.5
	07	305 18.4	292 55.1	39.8	51 05.0	19.4	126 02.1	01.2	278 43.3	35.3			Regulus	208 18.7	N 12 07.1
	08	320 20.8	307 58.8	38.8	66 07.0	19.5	141 04.8	01.3	293 45.4	35.4			Rigel	281 44.3	S 8 14.2
	09	335 23.3	323 02.5	37.9	81 09.1	19.7	156 07.5	01.4	308 47.6	35.5			Rigel Kent.	140 37.0	S 60 42.5
	10	350 25.7	338 06.2	36.9	96 11.1	19.8	171 10.3	01.5	323 49.8	35.6			Sabik	102 50.6	S 15 41.5
	11	5 28.2	353 09.9	35.9	111 13.1	19.9	186 13.0	01.6	338 51.9	35.7					
	12	20 30.7	8 13.5	N 12 34.9	126 15.1	S 22 20.0	201 15.7	N 2 01.7	353 54.1	N 8 35.8			Schedar	350 19.5	N 56 22.0
	13	35 33.1	23 17.2	33.9	141 17.2	20.1	216 18.4	01.8	8 56.2	36.0			Shaula	97 07.1	S 37 05.1
	14	50 35.6	38 20.9	32.9	156 19.2	20.3	231 21.1	01.9	23 58.4	36.1			Sirius	259 03.2	S 16 40.4
	15	65 38.1	53 24.6	31.9	171 21.2	20.4	246 23.8	02.0	39 00.6	36.2			Spica	159 06.1	S 11 00.2
	16	80 40.5	68 28.3	30.9	186 23.2	20.5	261 26.6	02.1	54 02.7	36.3			Suhail	223 17.0	S 43 18.6
	17	95 43.0	83 31.9	29.9	201 25.3	20.6	276 29.3	02.2	69 04.9	36.4					
	18	110 45.5	98 35.6	N 12 28.9	216 27.3	S 22 20.8	291 32.0	N 2 02.3	84 07.1	N 8 36.5			Vega	81 01.5	N 38 44.8
	19	125 47.9	113 39.3	28.0	231 29.3	20.9	306 34.7	02.4	99 09.2	36.6			Zuben'ubi	137 42.1	S 15 55.1
	20	140 50.4	128 42.9	27.0	246 31.4	21.0	321 37.4	02.5	114 11.4	36.8				S.H.A.	Mer. Pass.
	21	155 52.9	143 46.6	26.0	261 33.4	21.1	336 40.1	02.6	129 13.6	36.9					
	22	170 55.3	158 50.3	25.0	276 35.4	21.2	351 42.9	02.7	144 15.7	37.0			Venus	346 57.7	11 33
23	185 57.8	173 53.9	24.0	291 37.5	21.4	6 45.6	02.8	159 17.9	37.1			Mars	106 01.0	3 39	
													Jupiter	180 35.8	22 37
													Saturn	333 34.1	12 28
Mer. Pass.		10 42.1	v 3.7	d 1.0	v 2.0	d 0.1	v 2.7	d 0.1	v 2.2	d 0.1	v 2.2	d 0.1			

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise								
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	10	11	12	13				
d	h	°	'	°	'	°	'	°	h	m	h	m	h	m	h	m	h	m		
10	00	179	38.0 N	7	48.0	259	40.3	5.5	S 25	43.4	8.1	59.1	N 72	01 36	03 02	04 17	05 57	05 15		
	01	194	38.2		49.0	274	04.8	5.6	25	35.3	8.2	59.1	68	02 13	03 22	04 28	05 33	05 04		
	02	209	38.4		49.9	288	29.4	5.7	25	27.1	8.4	59.1	66	02 38	03 38	04 37	05 44	05 13		
	03	224	38.6		50.8	302	54.1	5.8	25	18.7	8.6	59.0	64	02 57	04 02	04 51	05 49	05 14		
	04	239	38.7		51.7	317	18.9	5.9	25	10.1	8.7	59.0	62	03 13	04 11	04 56	05 49	05 14		
	05	254	38.9		52.7	331	43.8	6.0	25	01.4	8.9	59.0	60	03 26	04 19	05 01	05 49	05 14		
	06	269	39.1 N	7	53.6	346	08.8	6.1	S 24	52.5	9.1	59.0	N 58	03 37	04 26	05 05	05 49	05 14		
	07	284	39.2		54.5	0 33.9	6.3		24	43.4	9.1	59.0	56	03 46	04 32	05 09	05 49	05 14		
	08	299	39.4		55.4	14 59.2	6.3		24	34.3	9.4	59.0	54	03 54	04 37	05 13	05 49	05 14		
	09	314	39.6		56.4	29 24.5	6.4		24	24.9	9.4	59.0	52	04 01	04 43	05 16	05 49	05 14		
THURSDAY	10	329	39.7		57.3	43 49.9	6.6		24	15.5	9.7	59.0	50	04 16	04 53	05 23	05 49	05 14		
	11	344	39.9		58.2	58 15.5	6.6		24	05.8	9.7	58.9	45	04 28	05 01	05 29	05 49	05 14		
	12	359	40.1 N	7	59.1	72 41.1	6.8	S 23	56.1	10.0	58.9	N 40	04 37	05 08	05 34	05 49	05 14			
	13	14	40.2	8	00.1	87 06.9	6.9		23	46.1	10.0	58.9	35	04 45	05 14	05 38	05 49	05 14		
	14	29	40.4		01.0	101 32.8	7.0		23	36.1	10.2	58.9	30	04 57	05 23	05 45	05 49	05 14		
	15	44	40.6		01.9	115 58.8	7.1		23	25.9	10.3	58.9	20	05 06	05 31	05 52	05 49	05 14		
	16	59	40.8		02.8	130 24.9	7.2		23	15.6	10.5	58.9	N 10	05 13	05 37	05 58	05 49	05 14		
	17	74	40.9		03.8	144 51.1	7.3		23	05.1	10.6	58.9	0	05 22	05 47	06 04	05 49	05 14		
	18	89	41.1 N	8	04.7	159 17.4	7.4	S 22	54.5	10.7	58.9	S 10	05 25	05 52	06 16	05 49	05 14			
	19	104	41.3		05.6	173 43.8	7.5		22	43.8	10.8	58.8	20	05 25	05 55	06 20	05 49	05 14		
FRIDAY	20	119	41.4		06.5	188 10.3	7.7		22	33.0	11.0	58.8	30	05 26	05 57	06 25	05 49	05 14		
	21	134	41.6		07.4	202 37.0	7.7		22	22.0	11.1	58.8	35	05 26	06 00	06 30	05 49	05 14		
	22	149	41.8		08.4	217 03.7	7.9		22	10.9	11.3	58.8	40	05 26	06 03	06 36	05 49	05 14		
	23	164	41.9		09.3	231 30.6	8.0		21	59.6	11.3	58.8	45	05 26	06 06	06 30	05 49	05 14		
	00	179	42.1 N	8	10.2	245 57.6	8.0	S 21	48.3	11.5	58.8	S 50	05 25	06 04	06 38	05 49	05 14			
	01	194	42.3		11.1	260 24.6	8.2		21	36.8	11.6	58.8	52	05 25	06 06	06 41	05 49	05 14		
	02	209	42.4		12.0	274 51.8	8.3		21	25.2	11.7	58.7	54	05 25	06 06	06 41	05 49	05 14		
	03	224	42.6		13.0	289 19.1	8.4		21	13.5	11.8	58.7	56	05 24	06 07	06 45	05 49	05 14		
	04	239	42.8		13.9	303 46.5	8.5		21	01.7	12.0	58.7	58	05 23	06 09	06 48	05 49	05 14		
	05	254	42.9		14.8	318 14.0	8.7		20	49.7	12.0	58.7	S 60	05 22	06 10	06 52	05 49	05 14		
SATURDAY	06	269	43.1 N	8	15.7	332 41.7	8.7	S 20	37.7	12.2	58.7	Lat.	Sun-set	Twilight	Moonset					
	07	284	43.3		16.6	347 09.4	8.8		20	25.5	12.3	58.7		Civil	Naut.	10	11	12	13	
	08	299	43.4		17.6	1 37.2	9.0		20	13.2	12.3	58.7	°	h m	h m	h m	h m	h m	h m	
	09	314	43.6		18.5	16 05.2	9.0		20	00.9	12.5	58.6	N 72	20 02	21 34	02 02	11 26	14 07		
	10	329	43.8		19.4	30 33.2	9.2		19	48.4	12.6	58.6	N 70	19 48	21 05	02 05	11 57	14 18		
	11	344	43.9		20.3	45 01.4	9.3		19	35.8	12.7	58.6	68	19 37	20 43	22 36	10 39	12 20	14 27	
	12	359	44.1 N	8	21.2	59 29.7	9.3	S 19	23.1	12.8	58.6	66	19 28	20 27	21 55	10 21	12 37	14 35		
	13	14	44.3		22.2	73 58.0	9.5		19	10.3	12.9	58.6	64	19 20	20 14	21 28	08 19	10 49	12 51	
	14	29	44.4		23.1	88 26.5	9.6		18	57.4	13.0	58.6	62	19 14	20 02	21 08	09 06	11 11	13 03	
	15	44	44.6		24.0	102 55.1	9.7		18	44.4	13.1	58.5	60	19 08	19 53	20 52	09 36	11 28	13 13	
SUNDAY	16	59	44.8		24.9	117 23.8	9.7		18	31.3	13.1	58.5	N 58	19 03	19 45	20 39	09 58	11 42	13 22	14 55
	17	74	44.9		25.8	131 52.5	9.9		18	18.2	13.3	58.5	56	18 58	19 38	20 28	10 16	11 55	13 29	14 59
	18	89	45.1 N	8	26.7	146 21.4	10.0	S 18	04.9	13.4	58.5	54	18 54	19 31	20 18	10 32	12 05	13 36	15 02	
	19	104	45.2		27.7	160 50.4	10.1		17	51.5	13.4	58.5	52	18 50	19 26	20 10	10 45	12 15	13 42	15 05
	20	119	45.4		28.6	175 19.5	10.2		17	38.1	13.5	58.5	50	18 47	19 21	20 02	10 57	12 23	13 47	15 08
	21	134	45.6		29.5	189 48.7	10.3		17	24.6	13.7	58.4	45	18 40	19 10	19 47	11 21	12 41	13 59	15 14
	22	149	45.7		30.4	204 18.0	10.3		16	57.2	13.7	58.4	N 40	18 34	19 02	19 35	11 40	12 55	14 08	15 19
	23	164	45.9		31.3	218 47.3	10.5		16	43.5	13.9	58.4	35	18 29	18 55	19 26	11 56	13 07	14 16	15 23
	00	179	46.1 N	8	32.2	233 16.8	10.6	S 16	43.5	13.9	58.4	30	18 25	18 49	19 18	12 10	13 18	14 23	15 26	
	01	194	46.2		33.2	247 46.4	10.6		16	29.6	13.9	58.4	20	18 17	18 39	19 06	12 33	13 36	14 36	15 32
MONDAY	02	209	46.4		34.1	262 16.0	10.8		16	15.7	14.1	58.4	N 10	18 10	18 32	18 56	12 53	13 51	14 46	15 38
	03	224	46.6		35.0	276 45.8	10.8		16	01.6	14.1	58.3	0	18 04	18 25	18 49	13 11	14 06	14 56	15 43
	04	239	46.7		35.9	291 15.6	11.0		15	47.5	14.1	58.3	S 10	17 58	18 20	18 44	13 30	14 20	15 06	15 48
	05	254	46.9		36.8	305 45.6	11.0		15	33.4	14.3	58.3	20	17 52	18 14	18 40	13 49	14 35	15 16	15 53
	06	269	47.0 N	8	37.7	320 15.6	11.1	S 15	19.1	14.3	58.3	30	17 45	18 09	18 37	14 12	15 03	15 28	15 59	
	07	284	47.2		38.6	334 45.7	11.3		15	04.8	14.4	58.3	35	17 41	18 07	18 36	14 25	15 13	15 34	16 02
	08	299	47.4		39.6	349 16.0	11.3		14	50.4	14.4	58.3	40	17 37	18 04	18 36	14 40	15 14	15 42	16 06
	09	314	47.5		40.5	3 46.3	11.3		14	36.0	14.5	58.3	45	17 32	18 01	18 35	14 58	15 27	15 51	16 10
	10	329	47.7		41.4	18 16.6	11.5		14	21.5	14.6	58.2	S 50	17 26	17 58	18 36	15 20	15 43	16 01	16 15
	11	344	47.9		42.3	32 47.1	11.6		14	06.9	14.6	58.2	52	17 23	17 57	18 36	15 30	15 51	16 06	16 18
TUESDAY	12	359	48.0 N	8	43.2	47 17.7	11.6	S 13	52.3	14.7	58.2	54	17 20	17 55	18 36	15 42	15 59	16 11	16 20	
	13	14	48.2		44.1	61 48.3	11.7		13	37.6	14.8	58.2	56	17 16	17					

G.M.T.	ARIES		VENUS -3.3		MARS -0.6		JUPITER -2.0		SATURN +0.6		STARS		
	G.H.A.		G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "		° ' "	° ' "
13 SUN DAY	00	201 00.2	188 57.6	N 12 23.0	306 39.5	S 22 21.5	21 48.3	N 2 03.0	174 20.1	N 8 37.2	Acamar	315 43.9	S 40 25.7
	01	216 02.7	204 01.2	22.0	321 41.5	21.6	36 51.0	03.1	189 22.2	37.3	Achernar	335 51.8	S 57 23.5
	02	231 05.2	219 04.9	22.0	336 43.6	21.7	51 53.7	03.2	204 24.4	37.4	Acrux	173 46.4	S 62 55.9
	03	246 07.6	234 08.5	20.0	351 45.6	21.8	66 56.4	03.3	219 26.6	37.6	Adhara	255 38.8	S 28 55.9
	04	261 10.1	249 12.2	19.0	6 47.7	22.0	81 59.1	03.4	234 28.7	37.7	Aldebaran	291 27.9	N 16 27.0
	05	276 12.6	264 15.8	18.0	21 49.7	22.1	97 01.9	03.5	249 30.9	37.8			
	06	291 15.0	279 19.5	N 12 17.0	36 51.7	S 22 22.2	112 04.6	N 2 03.6	264 33.0	N 8 37.9	Alioth	166 49.0	N 56 07.5
	07	306 17.5	294 23.1	16.0	51 53.8	22.3	127 07.3	03.7	279 35.2	38.0	Alkaid	153 24.4	N 49 27.8
	08	321 20.0	309 26.8	15.0	66 55.8	22.4	142 10.0	03.8	294 37.4	38.1	Al Na'ir	28 25.6	S 47 06.6
	09	336 22.4	324 30.4	14.0	81 57.9	22.6	157 12.7	03.9	309 39.5	38.2	Alnilam	276 20.4	S 1 13.2
	10	351 24.9	339 34.0	13.0	96 59.9	22.7	172 15.4	04.0	324 41.7	38.4	Alphard	218 28.7	S 8 31.5
	11	6 27.4	354 37.7	12.1	112 02.0	22.8	187 18.1	04.1	339 43.9	38.5			
	12	21 29.8	9 41.3	N 12 11.1	127 04.0	S 22 22.9	202 20.8	N 2 04.2	354 46.0	N 8 38.6	Alphecca	126 38.9	N 26 48.7
	13	36 32.3	24 44.9	10.1	142 06.1	23.0	217 23.6	04.3	9 48.2	38.7	Alpheratz	358 18.5	N 28 55.1
	14	51 34.7	39 48.5	09.1	157 08.1	23.2	232 26.3	04.4	24 50.4	38.8	Altair	62 40.8	N 8 46.8
	15	66 37.2	54 52.2	08.1	172 10.2	23.3	247 29.0	04.5	39 52.5	38.9	Ankaa	353 48.7	S 42 28.3
	16	81 39.7	69 55.8	07.1	187 12.2	23.4	262 31.7	04.6	54 54.7	39.0	Antares	113 07.0	S 26 22.1
	17	96 42.1	84 59.4	06.1	202 14.3	23.5	277 34.4	04.7	69 56.9	39.2			
	18	111 44.6	100 03.0	N 12 05.1	217 16.4	S 22 23.6	292 37.1	N 2 04.8	84 59.0	N 8 39.3	Arcturus	146 25.7	N 19 20.3
	19	126 47.1	115 06.6	04.1	232 18.4	23.7	307 39.8	04.9	100 01.2	39.4	Atria	108 38.6	S 68 58.4
	20	141 49.5	130 10.2	03.1	247 20.5	23.9	322 42.5	05.0	115 03.4	39.5	Avior	234 31.8	S 59 24.8
	21	156 52.0	145 13.9	02.1	262 22.5	24.0	337 45.3	05.1	130 05.5	39.6	Bellatrix	279 08.0	N 6 19.4
	22	171 54.5	160 17.5	01.1	277 24.6	24.1	352 48.0	05.2	145 07.7	39.7	Betelgeuse	271 37.5	N 7 24.2
	23	186 56.9	175 21.1	12 00.1	292 26.7	24.2	7 50.7	05.3	160 09.8	39.8			
14 MON DAY	00	201 59.4	190 24.7	N 11 59.1	307 28.7	S 22 24.3	22 53.4	N 2 05.4	175 12.0	N 8 40.0	Canopus	264 11.2	S 52 40.8
	01	217 01.8	205 28.3	58.1	322 30.8	24.5	37 56.1	05.5	190 14.2	40.1	Capella	281 24.0	N 45 58.3
	02	232 04.3	220 31.9	57.1	337 32.8	24.6	52 58.8	05.6	205 16.3	40.2	Deneb	49 54.5	N 45 09.8
	03	247 06.8	235 35.4	56.1	352 34.9	24.7	68 01.5	05.7	220 18.5	40.3	Denebola	183 07.3	N 14 44.6
	04	262 09.2	250 39.0	55.1	7 37.0	24.8	83 04.2	05.8	235 20.7	40.4	Diphda	349 29.5	S 18 09.3
	05	277 11.7	265 42.6	54.1	22 39.1	24.9	98 06.9	05.9	250 22.8	40.5			
	06	292 14.2	280 46.2	N 11 53.1	37 41.1	S 22 25.1	113 09.7	N 2 06.0	265 25.0	N 8 40.6	Dubhe	194 31.5	N 61 55.2
	07	307 16.6	295 49.8	52.1	52 43.2	25.2	128 12.4	06.1	280 27.2	40.7	Elinath	278 55.0	N 28 35.1
	08	322 19.1	310 53.4	51.1	67 45.3	25.3	143 15.1	06.2	295 29.3	40.9	Eltanin	91 01.4	N 51 29.1
	09	337 21.6	325 56.9	50.1	82 47.3	25.4	158 17.8	06.3	310 31.5	41.0	Enif	34 20.0	N 9 43.7
	10	352 24.0	341 00.5	49.1	97 49.4	25.5	173 20.5	06.4	325 33.7	41.1	Fomalhaut	16 00.8	S 29 47.2
	11	7 26.5	356 04.1	48.1	112 51.5	25.6	188 23.2	06.5	340 35.8	41.2			
	12	22 28.9	11 07.6	N 11 47.1	127 53.6	S 22 25.8	203 25.9	N 2 06.6	355 38.0	N 8 41.3	Gacrux	172 37.9	S 56 56.6
	13	37 31.4	26 11.2	46.1	142 55.7	25.9	218 28.6	06.7	10 40.1	41.4	Gienah	176 26.4	S 17 22.4
	14	52 33.9	41 14.8	45.1	157 57.7	26.0	233 31.3	06.8	25 42.3	41.5	Hadar	149 35.0	S 60 13.6
	15	67 36.3	56 18.3	44.1	172 59.8	26.1	248 34.0	06.9	40 44.5	41.7	Hamal	328 38.8	N 23 19.0
	16	82 38.8	71 21.9	43.1	188 01.9	26.2	263 36.7	07.0	55 46.6	41.8	Kaus Aust.	84 27.9	S 34 24.1
	17	97 41.3	86 25.4	42.1	203 04.0	26.4	278 39.4	07.1	70 48.8	41.9			
	18	112 43.7	101 29.0	N 11 41.2	218 06.1	S 22 26.5	293 42.2	N 2 07.2	85 51.0	N 8 42.0	Kochab	137 16.8	N 74 16.6
	19	127 46.2	116 32.5	40.2	233 08.2	26.6	308 44.9	07.3	100 53.1	42.1	Markab	14 11.9	N 15 02.2
	20	142 48.7	131 36.1	39.2	248 10.2	26.7	323 47.6	07.4	115 55.3	42.2	Menkar	314 50.3	N 3 58.2
	21	157 51.1	146 39.6	38.2	263 12.3	26.8	338 50.3	07.5	130 57.5	42.3	Menkent	148 46.7	S 36 13.3
	22	172 53.6	161 43.2	37.2	278 14.4	26.9	353 53.0	07.6	145 59.6	42.5	Miaplacidus	221 46.9	S 69 35.6
	23	187 56.1	176 46.7	36.2	293 16.5	27.1	8 55.7	07.7	161 01.8	42.6			
15 TUES DAY	00	202 58.5	191 50.3	N 11 35.2	308 18.6	S 22 27.2	23 58.4	N 2 07.8	176 03.9	N 8 42.7	Mirfak	309 28.8	N 49 45.3
	01	218 01.0	206 53.8	34.2	323 20.7	27.3	39 01.1	07.9	191 06.1	42.8	Nunki	76 39.5	S 26 20.3
	02	233 03.4	221 57.3	33.2	338 22.8	27.4	54 03.8	08.0	206 08.3	42.9	Peacock	54 11.6	S 56 50.0
	03	248 05.9	237 00.8	32.2	353 24.9	27.5	69 06.5	08.1	221 10.4	43.0	Pollux	244 08.4	N 28 06.3
	04	263 08.4	252 04.4	31.2	8 27.0	27.6	84 09.2	08.2	236 12.6	43.1	Procyon	245 34.6	N 5 18.3
	05	278 10.8	267 07.9	30.2	23 29.1	27.8	99 11.9	08.3	251 14.8	43.3			
	06	293 13.3	282 11.4	N 11 29.2	38 31.2	S 22 27.9	114 14.6	N 2 08.4	266 16.9	N 8 43.4	Rasalhague	96 37.2	N 12 34.5
	07	308 15.8	297 14.9	28.2	53 33.3	28.0	129 17.3	08.5	281 19.1	43.5	Regulus	208 18.7	N 12 07.1
	08	323 18.2	312 18.4	27.2	68 35.4	28.1	144 20.0	08.6	296 21.3	43.6	Rigel	281 44.3	S 8 14.2
	09	338 20.7	327 21.9	26.2	83 37.5	28.2	159 22.8	08.7	311 23.4	43.7	Rigel Kent.	140 36.9	S 60 42.6
	10	353 23.2	342 25.4	25.2	98 39.6	28.4	174 25.5	08.8	326 25.6	43.8	Sabik	102 50.6	S 15 41.5
	11	8 25.6	357 28.9	24.2	113 41.7	28.5	189 28.2	08.9	341 27.7	43.9			
	12	23 28.1	12 32.4	N 11 23.3	128 43.8	S 22 28.6	204 30.9	N 2 09.0	356 29.9	N 8 44.0	Schedar	350 19.5	N 56 22.0
	13	38 30.6	27 35.9	22.3	143 45.9	28.7	219 33.6	09.1	11 32.1	44.2	Shaula	97 07.0	S 37 05.1
	14	53 33.0	42 39.4	21.3	158 48.0	28.8	234 36.3	09.2	26 34.2	44.3	Sirius	259 03.2	S 16 40.4
	15	68 35.5	57 42.9	20.3	173 50.1	28.9	249 39.0	09.3	41 36.4	44.4	Spica	159 06.1	S 11 00.3
	16	83 37.9	72 46.4	19.3	188 52.2	29.1	264 41.7	09.4	56 38.6	44.5	Suhail	223 17.0	S 43 18.7
	17	98 40.4	87 49.9	18.3	203 54.3	29.2	279 44.4	09.5	71 40.7	44.6			
	18	113 42.9	102 53.4	N 11 17.3	218 56.4	S 22 29.3	294 47.1	N 2 09.6	86 42.9	N 8 44.7	Vega	81 01.5	N 38 44.8
	19	128 45.3	117 56.9	16.3	233 58.6	29.4	309 49.8	09.7	101 45.1	44.8	Zuben'ubi	137 42.1	S 15 55.1
	20	143 47.8	133 00.3	15.3	249 00.7	29.5	324 52.5	09.8	116 47.2	45.0			
	21	158 50.3	148 03.8	14.3	264 02.8	29.6	339 55.2	09.9	131 49.4	45.1			
	22	173 52.7	163 07.3	13.3	279 04.9	29.8	354 57.9	10.0	146 51.5	45.2	Venus	348 25.3	h 11 16
	23	188 55.2	178 10.8	12.4	294 07.0	29.9	10 00.6	10.1	161 53.7	45.3	Mars	105 29.3	h 3 30
											Jupiter	180 54.0	22 24
											Saturn	333 12.6	12 17
Mer. Pass. 10 30.3											Mer. Pass. h m		
v 3.6 d 1.0											v 2.1 d 0.1		
											v 2.7 d 0.1		
											v 2.2 d 0.1		

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise					
		G.H.A.	Dec.	G.H.A.	φ	Dec.	d		H.P.	Naut.		Civil	13	14	15	16	
d	h	°	'	°	'	°	'	'	°	h	m	h	m	h	m	h	m
13	00	179 50.0	N 8 54.1	221 30.5	12.6	S 10 52.2	15.3	58.0	N 72	02 09	03 46	05 30	04 50	04 15	03 37		
	01	194 50.1	55.0	236 02.1	12.6	10 36.9	15.3	58.0	N 70	01 00	02 43	04 02	05 15	04 45	04 18	03 50	
	02	209 50.3	56.0	250 33.7	12.7	10 21.6	15.4	58.0	68	01 51	03 25	04 25	05 04	04 42	04 21	04 00	
	03	224 50.4	56.9	265 05.4	12.7	10 06.2	15.5	57.9	66	02 22	03 39	04 33	04 54	04 38	04 24	04 09	
	04	239 50.6	57.8	279 37.1	12.9	9 50.7	15.5	57.9	64	02 44	03 51	04 41	04 39	04 33	04 28	04 23	
	05	254 50.8	58.7	294 09.0	12.8	9 35.2	15.5	57.9	62	03 01	04 01	04 47	04 33	04 31	04 30	04 28	
	06	269 50.9	N 8 59.6	308 40.8	13.0	S 9 19.7	15.5	57.9	N 58	03 15	04 10	04 53	04 27	04 29	04 31	04 33	
	07	284 51.1	9 00.5	323 12.8	13.0	9 04.2	15.6	57.9	56	03 27	04 18	04 58	04 22	04 28	04 33	04 38	
	08	299 51.2	01.4	337 44.8	13.0	8 48.6	15.6	57.8	54	03 38	04 25	05 02	04 18	04 26	04 34	04 41	
	09	314 51.4	02.3	352 16.8	13.2	8 33.0	15.6	57.8	52	03 46	04 30	05 06	04 14	04 25	04 35	04 45	
	10	329 51.6	03.2	367 49.0	13.2	8 17.4	15.7	57.8	50	03 54	04 36	05 10	04 10	04 24	04 36	04 49	
	11	344 51.7	04.1	21 21.2	13.2	8 01.7	15.7	57.8	45	04 10	04 47	05 18	04 02	04 21	04 38	04 56	
	12	359 51.9	N 9 05.0	35 53.4	13.3	S 7 46.0	15.7	57.8	N 40	04 23	04 56	05 24	03 56	04 18	04 40	05 02	
	13	14 52.0	05.9	50 25.7	13.3	7 30.3	15.8	57.8	35	04 33	05 04	05 30	03 50	04 16	04 42	05 07	
	14	29 52.2	06.8	64 58.0	13.4	7 14.5	15.8	57.7	30	04 41	05 10	05 35	03 45	04 15	04 43	05 12	
	15	44 52.4	07.7	79 30.4	13.5	6 58.7	15.8	57.7	20	04 54	05 21	05 43	03 36	04 12	04 46	05 20	
	16	59 52.5	08.7	94 02.9	13.5	6 42.9	15.8	57.7	N 10	05 04	05 29	05 50	03 28	04 09	04 48	05 27	
	17	74 52.7	09.6	108 35.4	13.5	6 27.1	15.8	57.7	0	05 12	05 36	05 57	03 21	04 06	04 50	05 34	
	18	89 52.8	N 9 10.5	123 07.9	13.6	S 6 11.3	15.9	57.7	S 10	05 18	05 42	06 04	03 13	04 04	04 53	05 41	
	19	104 53.0	11.4	137 40.5	13.7	5 55.4	15.8	57.6	20	05 23	05 48	06 10	03 06	04 01	04 55	05 48	
	20	119 53.1	12.3	152 13.2	13.6	5 39.6	15.9	57.6	30	05 26	05 54	06 18	02 57	03 58	04 58	05 57	
	21	134 53.3	13.2	166 45.8	13.8	5 23.7	15.9	57.6	35	05 28	05 57	06 23	02 51	03 56	04 59	06 02	
	22	149 53.5	14.1	181 18.6	13.7	5 07.8	16.0	57.6	40	05 29	06 00	06 28	02 45	03 54	05 01	06 08	
23	164 53.6	15.0	195 51.3	13.9	4 51.8	15.9	57.6	45	05 30	06 04	06 33	02 38	03 52	05 03	06 14		
14	00	179 53.8	N 9 15.9	210 24.2	13.8	S 4 35.9	15.9	57.5	S 50	05 30	06 08	06 40	02 30	03 49	05 06	06 22	
	01	194 53.9	16.8	224 57.0	13.9	4 20.0	16.0	57.5	52	05 30	06 09	06 43	02 26	03 48	05 07	06 26	
	02	209 54.1	17.7	239 29.9	13.9	4 04.0	15.9	57.5	54	05 30	06 11	06 47	02 22	03 46	05 08	06 30	
	03	224 54.2	18.6	254 02.8	14.0	3 48.1	16.0	57.5	56	05 30	06 13	06 51	02 17	03 45	05 10	06 34	
	04	239 54.4	19.5	268 35.8	14.0	3 32.1	16.0	57.5	58	05 29	06 15	06 55	02 11	03 43	05 12	06 39	
	05	254 54.6	20.4	283 08.8	14.0	3 16.1	15.9	57.4	S 60	05 29	06 17	07 00	02 05	03 41	05 13	06 45	
	06	269 54.7	N 9 21.3	297 41.8	14.1	S 3 00.2	16.0	57.4									
	07	284 54.9	22.2	312 14.9	14.1	2 44.2	16.0	57.4	Lat.	Sun-set	Twilight		Moonset				
	08	299 55.0	23.1	326 48.0	14.1	2 28.2	16.0	57.4			Civil	Naut.	13	14	15	16	
	09	314 55.2	24.0	341 21.1	14.2	2 12.2	15.9	57.4	°	h	m	h	m	h	m	h	m
	10	329 55.3	24.9	355 54.3	14.2	1 56.3	16.0	57.3	N 72	20 18	21 59	///	14 07	16 23	18 36	21 01	
	11	344 55.5	25.8	10 27.5	14.2	1 40.3	16.0	57.3	N 70	20 02	21 23	///	14 18	16 24	18 26	20 36	
	12	359 55.6	N 9 26.7	25 00.7	14.2	S 1 24.3	15.9	57.3	68	19 49	20 58	23 16	14 27	16 24	18 18	20 16	
	13	14 55.8	27.6	39 33.9	14.3	1 08.4	16.0	57.3	66	19 38	20 39	22 16	14 35	16 24	18 12	20 01	
	14	29 56.0	28.5	54 07.2	14.3	0 52.4	16.0	57.3	64	19 29	20 24	21 43	14 41	16 25	18 06	19 49	
	15	44 56.1	29.4	68 40.5	14.3	0 36.4	15.9	57.2	62	19 22	20 12	21 20	14 47	16 25	18 01	19 38	
	16	59 56.3	30.3	83 13.8	14.3	0 20.5	15.9	57.2	60	19 15	20 01	21 02	14 51	16 25	17 57	19 29	
	17	74 56.4	31.2	97 47.1	14.4	S 0 04.6	16.0	57.2	N 58	19 09	19 52	20 48	14 55	16 25	17 54	19 22	
	18	89 56.6	N 9 32.1	112 20.5	14.4	N 0 11.4	15.9	57.2	56	19 04	19 44	20 35	14 59	16 26	17 50	19 15	
	19	104 56.7	33.0	126 53.9	14.5	0 27.3	15.9	57.2	54	19 00	19 38	20 25	15 02	16 26	17 47	19 09	
	20	119 56.9	33.9	141 27.2	14.4	0 43.2	15.9	57.1	52	18 56	19 31	20 16	15 05	16 26	17 45	19 03	
	21	134 57.0	34.8	156 00.6	14.5	0 59.1	15.8	57.1	50	18 52	19 26	20 08	15 08	16 26	17 42	18 59	
	22	149 57.2	35.7	170 34.1	14.4	1 14.9	15.9	57.1	45	18 44	19 14	19 51	15 14	16 26	17 37	18 48	
23	164 57.3	36.6	185 07.5	14.4	1 30.8	15.8	57.1	N 40	18 37	19 05	19 39	15 19	16 26	17 33	18 39		
15	00	179 57.5	N 9 37.5	199 40.9	14.5	N 1 46.6	15.9	57.0	35	18 32	18 57	19 28	15 23	16 27	17 29	18 32	
	01	194 57.6	38.4	214 14.4	14.4	2 02.5	15.8	57.0	30	18 26	18 51	19 20	15 26	16 27	17 26	18 25	
	02	209 57.8	39.3	228 47.8	14.5	2 18.3	15.8	57.0	20	18 18	18 40	19 07	15 32	16 27	17 21	18 14	
	03	224 58.0	40.2	243 21.3	14.5	2 34.1	15.7	57.0	N 10	18 10	18 32	18 57	15 38	16 27	17 16	18 04	
	04	239 58.1	41.1	257 54.8	14.5	2 49.8	15.7	57.0	0	18 04	18 25	18 49	15 43	16 27	17 11	17 55	
	05	254 58.3	42.0	272 28.3	14.5	3 05.5	15.8	56.9	S 10	17 57	18 18	18 43	15 48	16 28	17 07	17 46	
	06	269 58.4	N 9 42.9	287 01.8	14.5	N 3 21.3	15.6	56.9	20	17 50	18 12	18 38	15 53	16 28	17 02	17 36	
	07	284 58.6	43.8	301 35.3	14.5	3 36.9	15.7	56.9	30	17 42	18 06	18 34	15 59	16 28	16 56	17 26	
	08	299 58.7	44.7	316 08.8	14.5	3 52.6	15.6	56.9	35	17 37	18 03	18 32	16 02	16 28	16 53	17 19	
	09	314 58.9	45.5	330 42.3	14.5	4 08.2	15.6	56.9	40	17 32	18 00	18 31	16 06	16 28	16 50	17 12	
	10	329 59.0	46.4	345 15.8	14.5	4 23.8	15.6	56.8	45	17 26	17 56	18 30	16 10	16 28	16 45	17 04	
	11	344 59.2	47.3	359 49.3	14.5	4 39.4	15.6	56.8	S 50	17 19	17 52	18 30	16 15	16 28	16 41	16 54	
	12	359 59.3	N 9 48.2	14 22.8	14.5	N 4 55.0	15.5	56.8	52	17 16	17 50	18 30	16 18	16 28	16 38	16 49	
	13	14 59.5	49.1	28 56.3	14.5	5 10.5	15.4	56.8	54	17 13	17 49	18 30	16 20	16 28	16 36	16 44	
	14	29 59.6	50.0	43 29.8	14.5	5 25.9	15.5	56.8	56	17 09	17 47	18 30	16 23	16 28	16 33	16 39	
	15	44 59.8	50.9	58 03.3	14.5	5 41.4	15.4	56.7	58	17 05	17 45	18 30	16 26	16 28	16 30	16 33	
	16	59 59.9	51.8	72 36.8	14.5	5 56.8	15.4	56.7	S 60	17 00	17 42	18 30	16 30	16 28	16 27	16 26	
	17	75 00.1	52.7	87 10.3	14.4	6 12.2	15.3	56.7									
	18	90 00.2	N 9 53.6	101 43.7	14.5	N 6 27.5	15.3	56.7	Day	Egn. of Time		Mer. Pass.	MOON				
	19	105 00.4	54.5	116 17.2	14.5	6 42.8	15.3	56.6	°	00 ^h	12 ^h		Mer. Upper	Pass. Lower	Age	Phase	
	20	120 00.5	55.4	130 50.7	14.4	6 58.1	15.2	56.6	m	s	h		m	d			
	21	135 00.7	56.3	145 24.1	14.5	7 13.3	15.1	56.6	13	00 40	00 33	12 01	09 32	21 55	26		
	22	150 00.8	57.1	159 57.6	14.4	7 28.4	15.2	56.6	14	00 25	00 18	12 00	10 17	22 39	27		
23	165 01.0	58.0	174 31.0	14.4	7 43.6	15.1	56.6	15	00 10	00 03	12 00	11 01	23 23	28			
		S.D. 16.0	d 0.9	S.D. 15.7	15.6	15.6	15.5										

G.M.T.		ARIES		VENUS -3.5		MARS -0.7		JUPITER -2.0		SATURN +0.6		STARS								
		G.H.A.		G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.						
d	h	°	'	°	'	°	'	°	'	°	'		°	'						
16 WEDNESDAY	00	203	57.7	193	14.2	N 11.4		309	09.1	S 22	30.0				Acamar	315	43.9	S	40	25.7
	01	219	00.1	208	17.7		10.4	324	11.3		30.1				Achernar	335	51.8	S	57	23.5
	02	234	02.6	223	21.1		09.4	339	13.4		30.2				Acrux	173	46.4	S	62	55.9
	03	249	05.1	238	24.6		08.4	354	15.5		30.3				Adhara	255	38.8	S	28	55.9
	04	264	07.5	253	28.0		07.4	9	17.6		30.5				Aldebaran	291	28.0	N	16	27.0
	05	279	10.0	268	31.5		06.4	24	19.8		30.6									
	06	294	12.4	283	34.9	N 11	05.5	39	21.9	S 22	30.7				Alioth	166	49.0	N	56	07.5
	07	309	14.9	298	38.4		04.5	54	24.0		30.8				Alkaid	153	24.4	N	49	27.4
	08	324	17.4	313	41.8		03.5	69	26.1		30.9				Al Na'ir	28	25.6	S	47	06.1
	09	339	19.8	328	45.2		02.5	84	28.3		31.0				Alnilam	276	20.4	S	1	13.1
	10	354	22.3	343	48.7		01.5	99	30.4		31.2				Alphard	218	28.7	S	8	31.5
	11	9	24.8	358	52.1	11	00.5	114	32.5		31.3									
	12	24	27.2	13	55.5	N 10	59.5	129	34.7	S 22	31.4				Alphecca	126	38.9	N	26	48.7
	13	39	29.7	28	59.0		58.6	144	36.8		31.5				Alpheratz	358	18.5	N	28	55.1
	14	54	32.2	44	02.4		57.6	159	38.9		31.6				Altair	62	40.7	N	8	46.8
	15	69	34.6	59	05.8		56.6	174	41.1		31.7				Ankaa	353	48.7	S	42	28.3
	16	84	37.1	74	09.2		55.6	189	43.2		31.8				Antares	113	07.0	S	26	22.1
	17	99	39.5	89	12.6		54.6	204	45.4		32.0									
	18	114	42.0	104	16.0	N 10	53.7	219	47.5	S 22	32.1				Arcturus	146	25.7	N	19	20.3
	19	129	44.5	119	19.4		52.7	234	49.6		32.2				Atria	108	38.5	S	68	58.4
	20	144	46.9	134	22.8		51.7	249	51.8		32.3				Avior	234	31.8	S	59	24.8
	21	159	49.4	149	26.2		50.7	264	53.9		32.4				Bellatrix	279	08.0	N	6	19.4
	22	174	51.9	164	29.6		49.7	279	56.1		32.5				Betelgeuse	271	37.5	N	7	24.2
23	189	54.3	179	33.0		48.8	294	58.2		32.7										
17 THURSDAY	00	204	56.8	194	36.4	N 10	47.8	310	00.4	S 22	32.8				Canopus	264	11.2	S	52	40.8
	01	219	59.3	209	39.8		46.8	325	02.5		32.9				Capella	281	24.1	N	45	58.3
	02	235	01.7	224	43.2		45.8	340	04.7		33.0				Deneb	49	54.4	N	45	09.8
	03	250	04.2	239	46.5		44.9	355	06.8		33.1				Denebola	183	07.3	N	14	44.5
	04	265	06.6	254	49.9		43.9	10	09.0		33.2				Diphda	349	29.5	S	18	09.3
	05	280	09.1	269	53.3		42.9	25	11.1		33.3									
	06	295	11.6	284	56.7	N 10	41.9	40	13.3	S 22	33.5				Dubhe	194	31.5	N	61	55.2
	07	310	14.0	300	00.0		41.0	55	15.5		33.6				El Nath	278	55.0	N	28	35.1
	08	325	16.5	315	03.4		40.0	70	17.6		33.7				Eltanin	91	01.4	N	51	29.1
	09	340	19.0	330	06.7		39.0	85	19.8		33.8				Enif	34	20.0	N	9	43.8
	10	355	21.4	345	10.1		38.1	100	21.9		33.9				Fomalhaut	16	00.8	S	29	47.2
	11	10	23.9	0	13.4		37.1	115	24.1		34.0									
	12	25	26.4	15	16.8	N 10	36.1	130	26.3	S 22	34.1				Gacrux	172	37.9	S	56	56.7
	13	40	28.8	30	20.1		35.2	145	28.4		34.3				Gienah	176	26.4	S	17	22.5
	14	55	31.3	45	23.5		34.2	160	30.6		34.4				Hadar	149	35.0	S	60	13.7
	15	70	33.8	60	26.8		33.2	175	32.8		34.5				Hamal	328	38.8	N	23	19.0
	16	85	36.2	75	30.2		32.3	190	34.9		34.6				Kaus Aust.	84	27.8	S	34	24.1
	17	100	38.7	90	33.5		31.3	205	37.1		34.7									
	18	115	41.1	105	36.8	N 10	30.3	220	39.3	S 22	34.8				Kochab	137	16.8	N	74	16.6
	19	130	43.6	120	40.1		29.4	235	41.4		35.0				Markab	14	11.9	N	15	02.2
	20	145	46.1	135	43.5		28.4	250	43.6		35.1				Menkar	314	50.3	N	3	58.2
	21	160	48.5	150	46.8		27.4	265	45.8		35.2				Menkent	148	46.7	S	36	13.3
	22	175	51.0	165	50.1		26.5	280	48.0		35.3				Miaplacidus	221	46.9	S	69	35.6
23	190	53.5	180	53.4		25.5	295	50.1		35.4										
18 FRIDAY	00	205	55.9	195	56.7	N 10	24.6	310	52.3	S 22	35.5				Mirfak	309	28.8	N	49	45.3
	01	220	58.4	211	00.0		23.6	325	54.5		35.6				Nunki	76	39.5	S	26	20.3
	02	236	00.9	226	03.3		22.7	340	56.7		35.8				Peacock	54	11.5	S	56	50.0
	03	251	03.1	241	06.6		21.7	355	58.8		35.9				Pollux	244	08.4	N	28	06.3
	04	266	05.8	256	09.9		20.7	11	01.0		36.0				Procyon	245	34.6	N	5	18.3
	05	281	08.3	271	13.2		19.8	26	03.2		36.1									
	06	296	10.7	286	16.5	N 10	18.8	41	05.4	S 22	36.2				Rasalhague	96	37.2	N	12	34.5
	07	311	13.2	301	19.8		17.9	56	07.6		36.3				Regulus	208	18.7	N	12	07.1
	08	326	15.6	316	23.1		16.9	71	09.8		36.4				Rigel	281	44.3	S	8	14.2
	09	341	18.1	331	26.3		16.0	86	12.0		36.5				Rigel Kent.	140	36.9	S	60	42.6
	10	356	20.6	346	29.6		15.0	101	14.2		36.7				Sabik	102	50.6	S	15	41.5
	11	11	23.0	1	32.4		14.1	116	16.3		36.8									
	12	26	25.5	16	36.1	N 10	13.1	131	18.5	S 22	36.9				Schedar	350	19.5	N	56	22.0
	13	41	28.0	31	39.4		12.2	146	20.7		37.0				Shaula	97	07.0	S	37	05.1
	14	56	30.4	46	42.7		11.2	161	22.9		37.1				Sirius	259	03.2	S	16	40.4
	15	71	32.9	61	45.9		10.3	176	25.1		37.2				Spica	159	06.1	S	11	00.3
	16	86	35.4	76	49.2		09.3	191	27.3		37.3				Suhail	223	17.0	S	43	18.7
	17	101	37.8	91	52.4		08.4	206	29.5		37.5									
	18	116	40.3	106	55.7	N 10	07.5	221	31.7	S 22	37.6				Vega	81	01.4	N	38	44.8
	19	131	42.8	121	58.9		06.5	236	33.9		37.7				Zuben'ubi	137	42.1	S	15	55.1
	20	146	45.2	137	02.1		05.6	251	36.1		37.8									
	21	161	47.7	152	05.4		04.6	266	38.3		37.9									
	22	176	50.1	167	08.6		03.7	281	40.5		38.0									
23	191	52.6	182	11.8		02.8	296	42.7		38.1										
Mer. Pass. 10 18:5		v 3.3 d 1.0		v 2.2 d 0.1		v 2.7 d 0.1		v 2.2 d 0.1		v 2.2 d 0.1		S.H.A. Mer. Pass.								
												Venus 349 39.6 10 59								
												Mars 105 03.6 3 19								
												Jupiter 181 11.3 22 11								
												Saturn 332 51.0 12 07								

G.M.T.		SUN			MOON				Lat.	Twilight		Sun-rise	Moonrise										
		G.H.A.	Dec.		G.H.A.	Dec.	H.P.	Naut.		Civil	16		17	18	19								
d	h	o	'	"	o	'	"	"	°	h	m	h	m	h	m	h	m	h	m				
1600 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 WEDNESDAY	180	01.1	N	9	58.9	189	04.4	14.4	N	7	58.7	15.0	56.5	189	04.4	14.4	N	7	58.7				
	195	01.3		9	59.8	203	37.8	14.4	8	13.7	15.0	56.5	68	01 26	03 11	04 13	04 09	03 52	03 28				
	210	01.4		10	00.7	218	11.2	14.4	8	28.7	14.9	56.5	66	02 04	03 27	04 23	04 16	04 06	03 52				
	225	01.6		01.6	232	44.6	14.3	8	43.6	14.9	56.5	64	02 29	03 40	04 31	04 23	04 17	04 11	04 05				
	240	01.7		02.5	247	17.9	14.3	9	13.4	14.8	56.4	60	02 49	03 52	04 38	04 28	04 27	04 27	04 29				
	255	01.9		03.4	261	51.2	14.3	9	28.2	14.7	56.4	N 58	03 05	04 01	04 45	04 33	04 36	04 41	04 48				
	270	02.0	N	10	04.3	276	24.5	14.3	9	42.9	14.7	56.4	56	03 18	04 10	04 50	04 38	04 44	04 52	05 05			
	285	02.2		05.1	290	57.8	14.3	9	57.6	14.7	56.4	54	03 29	04 17	04 55	04 42	04 51	05 02	05 19	05 19			
	300	02.3		06.0	305	31.1	14.3	10	12.3	14.5	56.3	52	03 39	04 23	05 00	04 45	04 57	05 12	05 31	05 31			
	315	02.5		06.9	320	04.4	14.2	10	26.8	14.6	56.3	50	03 47	04 29	05 04	04 49	05 03	05 20	05 41	05 41			
	330	02.6		07.8	334	37.6	14.2	10	41.4	14.4	56.3	45	04 04	04 42	05 12	04 56	05 15	05 37	06 04	06 04			
	345	02.8		08.7	349	10.8	14.2	11	05.8	14.5	56.3	N 40	04 18	04 52	05 20	05 02	05 25	05 52	06 22	06 22			
	0	02.9	N	10	09.6	3	44.0	14.1	11	20.3	14.3	56.3	35	04 29	05 00	05 26	05 07	05 34	06 04	06 38			
	15	03.1		10.5	18	17.1	14.2	11	24.6	14.3	56.2	30	04 38	05 07	05 31	05 12	05 42	06 15	06 51	06 51			
	30	03.2		11.4	32	50.3	14.1	11	38.9	14.3	56.2	20	04 52	05 18	05 41	05 20	05 55	06 33	07 14	07 14			
	45	03.4		12.2	47	23.4	14.1	11	53.2	14.1	56.2	N 10	05 02	05 27	05 49	05 27	06 07	06 49	07 34	07 34			
	60	03.5		13.1	61	56.5	14.0	12	07.3	14.1	56.2	0	05 11	05 35	05 56	05 34	06 19	07 05	07 53	07 53			
	75	03.7		14.0	76	29.5	14.0	12	21.4	14.1	56.1	S 10	05 18	05 42	06 04	05 41	06 30	07 20	08 12	08 12			
	90	03.8	N	10	14.9	91	02.5	14.0	12	35.5	14.0	56.1	20	05 23	05 49	06 11	05 48	06 42	07 37	08 32			
	105	04.0		15.8	120	08.5	13.9	12	49.5	13.9	56.1	30	05 28	05 56	06 20	05 57	06 56	07 56	08 56	08 56			
	120	04.1		16.7	134	41.4	13.9	13	03.4	13.8	56.1	35	05 30	05 59	06 25	06 02	07 04	08 07	09 10	09 10			
	135	04.2		17.5	149	14.3	13.8	13	17.2	13.8	56.1	40	05 32	06 03	06 31	06 08	07 14	08 20	09 26	09 26			
	150	04.4		18.4	163	47.1	13.9	13	31.0	13.7	56.0	45	05 33	06 07	06 37	06 14	07 25	08 36	09 45	09 45			
	165	04.5		19.3	178	20.0	13.8	13	44.7	13.7	56.0	S 50	05 34	06 12	06 45	06 22	07 38	08 55	10 10	10 10			
1700 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 THURSDAY	180	04.7	N	10	20.2	178	20.0	13.8	13	44.7	13.7	56.0	52	05 35	06 14	06 48	06 26	07 45	09 04	10 21			
	195	04.8		21.1	192	52.8	13.7	13	58.4	13.5	56.0	54	05 35	06 16	06 52	06 30	07 52	09 14	10 35	10 35			
	210	05.0		22.0	207	25.5	13.7	14	11.9	13.5	56.0	56	05 35	06 19	06 57	06 34	07 59	09 25	10 51	10 51			
	225	05.1		22.8	221	58.2	13.7	14	25.4	13.5	55.9	58	05 36	06 21	07 02	06 39	08 08	09 39	11 09	11 09			
	240	05.3		23.7	236	30.9	13.7	14	38.9	13.3	55.9	S 60	05 36	06 24	07 07	06 45	08 19	09 54	11 32	11 32			
	255	05.4		24.6	251	03.6	13.6	14	52.2	13.3	55.9	Lat.				Sun-set		Twilight		Moonset			
	270	05.6	N	10	25.5	265	36.2	13.6	15	05.5	13.2	55.9	o	h	m	h	m	h	m	h	m	h	m
	285	05.7		26.4	280	08.8	13.5	15	18.7	13.1	55.9	Civil											
	300	05.8		27.2	294	41.3	13.5	15	31.8	13.1	55.8	N 72	20 34	22 29	///	21 01	23 20	24 28	00 28	00 28			
	315	06.0		28.1	309	13.8	13.4	15	44.9	12.9	55.8	N 70	20 15	21 43	///	20 36	22 31	24 36	00 32	00 32			
	330	06.1		29.0	323	46.2	13.4	15	57.8	12.9	55.8	68	20 00	21 13	///	20 16	22 31	24 36	00 32	00 32			
	345	06.3		29.9	338	18.6	13.4	16	10.7	12.8	55.8	66	19 48	20 52	22 42	20 01	22 00	24 28	00 28	00 28			
	0	06.4	N	10	30.8	352	51.0	13.3	16	23.5	12.8	55.8	64	19 38	20 35	22 00	19 49	21 37	23 36	00 32			
	15	06.6		31.6	7	23.3	13.3	16	36.3	12.6	55.7	62	19 30	20 21	21 33	19 38	21 19	23 04	24 57	24 57			
	30	06.7		32.5	21	55.6	13.3	16	48.9	12.6	55.7	60	19 22	20 10	21 13	19 29	21 04	22 41	24 18	24 18			
	45	06.9		33.4	36	27.9	13.1	17	01.5	12.4	55.7	N 58	19 16	20 00	20 57	19 22	20 51	22 22	23 51	23 51			
	60	07.0		34.3	51	00.0	13.2	17	13.9	12.4	55.7	56	19 10	19 51	20 44	19 15	20 40	22 06	23 29	23 29			
	75	07.1		35.2	65	32.2	13.1	17	26.3	12.3	55.7	54	19 05	19 44	20 32	19 09	20 31	21 53	23 12	23 12			
	90	07.3	N	10	36.0	80	04.3	13.1	17	38.6	12.3	55.6	52	19 01	19 37	20 22	19 03	20 22	21 41	22 57	22 57		
	105	07.4		36.9	94	36.4	13.0	17	50.9	12.1	55.6	50	18 57	19 31	20 14	18 59	20 15	21 31	22 44	22 44			
	120	07.6		37.8	109	08.4	13.0	18	03.0	12.0	55.6	45	18 48	19 19	19 56	18 48	19 59	21 09	22 17	22 17			
	135	07.7		38.7	123	40.4	12.9	18	15.0	12.0	55.6	N 40	18 40	19 09	19 42	18 39	19 46	20 52	21 57	21 57			
	150	07.9		39.5	138	12.3	12.9	18	27.0	11.8	55.5	35	18 34	19 00	19 31	18 32	19 35	20 37	21 39	21 39			
	165	08.0		40.4	152	44.2	12.8	18	38.8	11.8	55.5	30	18 28	18 53	19 22	18 25	19 25	20 25	21 24	21 24			
1800 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 FRIDAY	180	08.1	N	10	41.3	167	16.0	12.8	18	50.6	11.7	55.5	20	18 19	18 41	19 08	18 14	19 08	20 03	20 59			
	195	08.3		42.2	181	47.8	12.7	19	02.3	11.6	55.5	N 10	18 11	18 32	18 57	18 04	18 54	19 45	20 37	20 37			
	210	08.4		43.0	196	19.5	12.7	19	13.9	11.6	55.5	0	18 03	18 24	18 48	17 55	18 41	19 28	20 17	20 17			
	225	08.6		43.9	210	51.2	12.6	19	25.3	11.4	55.4	S 10	17 55	18 17	18 41	17 46	18 27	19 11	19 57	19 57			
	240	08.7		44.8	225	22.8	12.6	19	36.7	11.3	55.4	20	17 48	18 10	18 36	17 36	18 13	18 52	19 35	19 35			
	255	08.8		45.7	239	54.4	12.6	19	48.0	11.2	55.4	30	17 39	18 03	18 31	17 26	17 57	18 31	19 10	19 10			
	270	09.0	N	10	46.5	254	26.0	12.5	19	59.2	11.1	55.4	35	17 34	17 59	18 29	17 19	17 47	18 19	18 56	18 56		
	285	09.1		47.4	268	57.5	12.4	20	10.3	11.0	55.4	40	17 28	17 55	18 27	17 12	17 37	18 05	18 39	18 39			
	300	09.3		48.3	283	08.9	12.4	20	21.3	10.9	55.3	45	17 21	17 51	18 25	17 04	17 24	17 49	18 19	18 19			
	315	09.4		49.2	298	00.3	12.3	20	32.2	10.8	55.3	S 50	17 13	17 46	18 24	16 54	17 09	17 28	17 53	17 53			
	330	09.5		50.0	312	31.6	12.3	20	43.0	10.7	55.3	52	17 10	17 44	18 23	16 49	17 02	17 19	17 41	17 41			
	345	09.7		50.9	327	02.9	12.3	20	53.7	10.6	55.3	54	17 06	17 42	18 23	16 44	16 54	17 08	17 27	17 27			
	0	09.8	N	10	51.8	341	34.2	12.2	21	04.3	10.5	55.3	56	17 02	17 40	18 23	16 39	16 46	16 56	17 11	17 11		
	15	10.0		52.7	356	05.																	

G.M.T.	ARIES			VENUS -3.7			MARS -0.8			JUPITER -2.0			SATURN +0.6			STARS		
	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "		o ' "	o ' "
19 00	206 55.1	197 15.1	N 10 01.8	311 44.9	S 22 38.2	38.4	28 17.3	N 2 16.9	179 31.6	N 8 53.6	179 31.6	N 8 53.6	179 31.6	N 8 53.6	179 31.6	Acamar	315 43.9	S 40 25.6
01	221 57.5	212 18.3	10 00.9	326 47.1	38.4	38.4	43 20.0	17.0	194 33.8	53.7	194 33.8	53.7	194 33.8	53.7	194 33.8	Achernar	335 51.8	S 57 23.5
02	237 00.0	227 21.5	9 59.9	341 49.4	38.5	38.5	58 22.7	17.1	209 36.0	53.8	209 36.0	53.8	209 36.0	53.8	209 36.0	Acrux	173 46.4	S 62 55.9
03	252 02.5	242 24.7	59.0	356 51.6	38.6	38.6	73 25.4	17.2	224 38.1	53.9	224 38.1	53.9	224 38.1	53.9	224 38.1	Adhara	255 38.9	S 28 55.9
04	267 04.9	257 27.9	58.1	11 53.8	38.7	38.7	88 28.1	17.3	239 40.3	54.0	239 40.3	54.0	239 40.3	54.0	239 40.3	Aldebaran	291 28.0	N 16 27.0
05	282 07.4	272 31.1	57.2	26 56.0	38.8	38.8	103 30.8	17.4	254 42.4	54.1	254 42.4	54.1	254 42.4	54.1	254 42.4			
06	297 09.9	287 34.3	N 9 56.2	41 58.2	S 22 38.9	38.9	118 33.4	N 2 17.5	269 44.6	N 8 54.2	269 44.6	N 8 54.2	269 44.6	N 8 54.2	269 44.6	Alioth	166 49.0	N 56 07.6
07	312 12.3	302 37.5	55.3	57 00.4	39.0	39.0	133 36.1	17.6	284 46.8	54.4	284 46.8	54.4	284 46.8	54.4	284 46.8	Alkaid	153 24.4	N 49 27.8
08	327 14.8	317 40.7	54.4	72 02.6	39.2	39.2	148 38.8	17.7	299 48.9	54.5	299 48.9	54.5	299 48.9	54.5	299 48.9	Al Na'ir	28 25.5	S 47 06.6
09	342 17.3	332 43.9	53.4	87 04.9	39.3	39.3	163 41.5	17.7	314 51.1	54.6	314 51.1	54.6	314 51.1	54.6	314 51.1	Alnilam	276 20.4	S 1 13.2
10	357 19.7	347 47.1	52.5	102 07.1	39.4	39.4	178 44.2	17.8	329 53.3	54.7	329 53.3	54.7	329 53.3	54.7	329 53.3	Alphard	218 28.8	S 8 31.5
11	12 22.2	2 50.3	51.6	117 09.3	39.5	39.5	193 46.9	17.9	344 55.4	54.8	344 55.4	54.8	344 55.4	54.8	344 55.4			
12	27 24.6	17 53.5	N 9 50.7	132 11.5	S 22 39.6	39.6	208 49.6	N 2 18.0	359 57.6	N 8 54.9	359 57.6	N 8 54.9	359 57.6	N 8 54.9	359 57.6	Alphecca	126 38.8	N 26 48.7
13	42 27.1	32 56.6	49.7	147 13.7	39.7	39.7	223 52.2	18.1	14 59.7	55.0	14 59.7	55.0	14 59.7	55.0	14 59.7	Alpheratz	358 18.5	N 28 55.1
14	57 29.6	47 59.8	48.8	162 16.0	39.8	39.8	238 54.9	18.2	30 01.9	55.1	30 01.9	55.1	30 01.9	55.1	30 01.9	Altair	62 40.7	N 8 46.9
15	72 32.0	63 03.0	47.9	177 18.2	39.9	39.9	253 57.6	18.3	45 04.1	55.3	45 04.1	55.3	45 04.1	55.3	45 04.1	Ankaa	353 48.7	S 42 28.3
16	87 34.5	78 06.1	47.0	192 20.4	40.1	40.1	269 00.3	18.4	60 06.2	55.4	60 06.2	55.4	60 06.2	55.4	60 06.2	Antares	113 06.9	S 26 22.1
17	102 37.0	93 09.3	46.1	207 22.6	40.2	40.2	284 03.0	18.4	75 08.4	55.5	75 08.4	55.5	75 08.4	55.5	75 08.4			
18	117 39.4	108 12.5	N 9 45.1	222 24.9	S 22 40.3	40.3	299 05.7	N 2 18.5	90 10.6	N 8 55.6	90 10.6	N 8 55.6	90 10.6	N 8 55.6	90 10.6	Arcturus	146 25.7	N 19 20.3
19	132 41.9	123 15.6	44.2	237 27.1	40.4	40.4	314 08.3	18.6	105 12.7	55.7	105 12.7	55.7	105 12.7	55.7	105 12.7	Atria	108 38.5	S 68 58.4
20	147 44.4	138 18.8	43.3	252 29.3	40.5	40.5	329 11.0	18.7	120 14.9	55.8	120 14.9	55.8	120 14.9	55.8	120 14.9	Avior	234 31.8	S 59 24.8
21	162 46.8	153 21.9	42.4	267 31.6	40.6	40.6	344 13.7	18.8	135 17.1	55.9	135 17.1	55.9	135 17.1	55.9	135 17.1	Bellatrix	279 08.0	N 6 19.4
22	177 49.3	168 25.1	41.5	282 33.8	40.7	40.7	359 16.4	18.9	150 19.2	56.1	150 19.2	56.1	150 19.2	56.1	150 19.2	Betelgeuse	271 37.6	N 7 24.2
23	192 51.7	183 28.2	40.6	297 36.0	40.8	40.8	14 19.1	19.0	165 21.4	56.2	165 21.4	56.2	165 21.4	56.2	165 21.4			
20 00	207 54.2	198 31.3	N 9 39.6	312 38.3	S 22 41.0	41.0	29 21.8	N 2 19.1	180 23.5	N 8 56.3	180 23.5	N 8 56.3	180 23.5	N 8 56.3	180 23.5	Canopus	264 11.2	S 52 40.8
01	222 56.7	213 34.5	38.7	327 40.5	41.1	41.1	44 24.4	19.1	195 25.7	56.4	195 25.7	56.4	195 25.7	56.4	195 25.7	Capella	281 24.1	N 45 58.3
02	237 59.1	228 37.6	37.8	342 42.8	41.2	41.2	59 27.1	19.2	210 27.9	56.5	210 27.9	56.5	210 27.9	56.5	210 27.9	Deneb	49 54.4	N 45 09.8
03	253 01.6	243 40.7	36.9	357 45.0	41.3	41.3	74 29.8	19.3	225 30.0	56.6	225 30.0	56.6	225 30.0	56.6	225 30.0	Denebola	183 07.3	N 14 44.6
04	268 04.1	258 43.9	36.0	12 47.2	41.4	41.4	89 32.5	19.4	240 32.2	56.7	240 32.2	56.7	240 32.2	56.7	240 32.2	Diphda	349 29.5	S 18 09.3
05	283 06.5	273 47.0	35.1	27 49.5	41.5	41.5	104 35.2	19.5	255 34.4	56.8	255 34.4	56.8	255 34.4	56.8	255 34.4			
06	298 09.0	288 50.1	N 9 34.2	42 51.7	S 22 41.6	41.6	119 37.9	N 2 19.6	270 36.5	N 8 57.0	270 36.5	N 8 57.0	270 36.5	N 8 57.0	270 36.5	Dubhe	194 31.6	N 61 55.2
07	313 11.5	303 53.2	33.3	57 54.0	41.7	41.7	134 40.5	19.7	285 38.7	57.1	285 38.7	57.1	285 38.7	57.1	285 38.7	Elmath	278 55.0	N 28 35.1
08	328 13.9	318 56.3	32.4	72 56.2	41.9	41.9	149 43.2	19.8	300 40.9	57.2	300 40.9	57.2	300 40.9	57.2	300 40.9	Eltanin	91 01.4	N 51 29.1
09	343 16.4	333 59.4	31.5	87 58.5	42.0	42.0	164 45.6	19.8	315 43.0	57.3	315 43.0	57.3	315 43.0	57.3	315 43.0	Enif	34 20.0	N 9 43.8
10	358 18.9	349 02.5	30.6	103 00.7	42.1	42.1	179 48.9	19.9	330 45.2	57.4	330 45.2	57.4	330 45.2	57.4	330 45.2	Fomalhaut	16 00.8	S 29 47.1
11	13 21.3	4 05.6	29.7	118 03.0	42.2	42.2	194 51.3	20.0	345 47.3	57.5	345 47.3	57.5	345 47.3	57.5	345 47.3			
12	28 23.8	19 08.7	N 9 28.8	133 05.2	S 22 42.3	42.3	209 53.9	N 2 20.1	0 49.5	N 8 57.6	0 49.5	N 8 57.6	0 49.5	N 8 57.6	0 49.5	Gacrux	172 37.9	S 56 56.7
13	43 26.2	34 11.8	27.9	148 07.5	42.4	42.4	224 56.6	20.2	15 51.7	57.7	15 51.7	57.7	15 51.7	57.7	15 51.7	Gienah	176 26.4	S 17 22.5
14	58 28.7	49 14.9	27.0	163 09.7	42.5	42.5	239 59.3	20.3	30 53.8	57.9	30 53.8	57.9	30 53.8	57.9	30 53.8	Hadar	149 35.0	S 60 13.7
15	73 31.2	64 17.9	26.1	178 12.0	42.6	42.6	255 02.0	20.4	45 56.0	58.0	45 56.0	58.0	45 56.0	58.0	45 56.0	Hamal	328 38.8	N 23 19.0
16	88 33.6	79 21.0	25.2	193 14.3	42.7	42.7	270 04.7	20.5	60 58.2	58.1	60 58.2	58.1	60 58.2	58.1	60 58.2	Kaus Aust.	84 27.8	S 34 24.1
17	103 36.1	94 24.1	24.3	208 16.5	42.9	42.9	285 07.3	20.5	76 00.3	58.2	76 00.3	58.2	76 00.3	58.2	76 00.3			
18	118 38.6	109 27.2	N 9 23.5	223 18.8	S 22 43.0	43.0	300 10.0	N 2 20.6	91 02.5	N 8 58.3	91 02.5	N 8 58.3	91 02.5	N 8 58.3	91 02.5	Kochab	137 16.8	N 74 16.7
19	133 41.0	124 30.2	22.6	238 21.0	43.1	43.1	315 12.7	20.7	106 04.6	58.4	106 04.6	58.4	106 04.6	58.4	106 04.6	Markab	14 11.8	N 15 02.2
20	148 43.5	139 33.3	21.7	253 23.3	43.2	43.2	330 15.4	20.8	121 06.8	58.5	121 06.8	58.5	121 06.8	58.5	121 06.8	Menkar	314 50.2	N 3 58.2
21	163 46.0	154 36.4	20.8	268 25.6	43.3	43.3	345 18.0	20.9	136 09.0	58.6	136 09.0	58.6	136 09.0	58.6	136 09.0	Menkent	148 46.7	S 36 13.4
22	178 48.4	169 39.4	19.9	283 27.8	43.4	43.4	0 20.7	21.0	151 11.1	58.8	151 11.1	58.8	151 11.1	58.8	151 11.1	Miaplacidus	221 47.0	S 69 35.6
23	193 50.9	184 42.5	19.0	298 30.1	43.5	43.5	15 23.4	21.1	166 13.3	58.9	166 13.3	58.9	166 13.3	58.9	166 13.3			
21 00	208 53.4	199 45.5	N 9 18.1	313 32.4	S 22 43.6	43.6	30 26.1	N 2 21.1	181 15.5	N 8 59.0	181 15.5	N 8 59.0	181 15.5	N 8 59.0	181 15.5	Mirfak	309 28.8	N 49 45.3
01	223 55.8	214 48.6	17.3	328 34.6	43.7	43.7	45 28.8	21.2	196 17.6	59.1	196 17.6	59.1	196 17.6	59.1	196 17.6	Nunki	76 39.5	S 26 20.3
02	238 58.3	229 51.6	16.4	343 36.9	43.9	43.9	60 31.4	21.3	211 19.8	59.2	211 19.8	59.2	211 19.8	59.2	211 19.8	Peacock	54 11.5	S 56 50.0
03	254 00.7	244 54.6	15.5	358 39.2	44.0	44.0	75 34.1	21.4	226 21.9	59.3	226 21.9	59.3	226 21.9	59.3	226 21.9	Pollux	244 08.4	N 28 06.3
04	269 03.2	259 57.7	14.6	13 41.4	44.1	44.1	90 36.8	21.5	241 24.1	59.4	241 24.1	59.4	241 24.1	59.4	241 24.1	Procyon	245 34.6	N 5 18.3
05	284 05.7	275 00.7	13.8	28 43.7	44.2	44.2	105 39.5	21.6	256 26.3	59.5	256 26.3	59.5	256 26.3	59.5	256 26.3			
06	299 08.1	290 03.7	N 9 12.9	43 46.0	S 22 44.3	44.3	120 42.1	N 2 21.7	271 28.4	N 8 59.6	271 28.4	N 8 59.6	271 28.4	N 8 59.6	271 28.4	Rasalhague	96 37.2	N 12 34.5
07	314 10.6	305 06.7	12.0	58 48.3	44.4	44.4	135 44.8	21.7	286 30.6	59.8	286 30.6	59.8	286 30.6	59				

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise							
		G.H.A.	Dec.	G.H.A.	φ	Dec.	d		H.P.	Naut.		Civil	19	20	21	22			
d	h	°	'	°	'	°	'	°	'	h	m	h	m	h	m	h	m	h	m
19 SATURDAY	00	180	11.5	N 11	02.2	155	45.2	11.6	N 23	03.1	9.2	55.0	N 72	03 11	□	□	□	□	
	01	195	11.6	03.1	170	15.8	11.5	23	12.3	9.0	55.0	N 70	03 32	□	□	□	□		
	02	210	11.8	04.0	184	46.3	11.5	23	21.3	9.0	55.0	68	03 48	□	□	□	□		
	03	225	11.9	04.8	199	16.8	11.4	23	30.3	8.8	55.0	66	04 02	02 39	□	□	□		
	04	240	12.0	05.7	213	47.2	11.4	23	39.1	8.7	55.0	64	04 15	04 12	03 32	□	□		
	05	255	12.2	06.6	228	17.6	11.4	23	47.8	8.6	54.9	62	04 24	03 29	04 22	04 05	□		
	06	270	12.3	N 11	07.4	242	48.0	11.3	N 23	56.4	8.5	54.9	60	04 36	03 42	04 30	04 29	04 35	
	07	285	12.4	08.3	257	18.3	11.2	24	04.9	8.4	54.9	N 58	04 52	03 52	04 37	04 48	05 02		
	08	300	12.6	09.2	271	48.5	11.2	24	13.3	8.2	54.9	56	03 08	04 02	04 43	05 05	05 24		
	09	315	12.7	10.0	286	18.7	11.2	24	21.5	8.2	54.9	54	03 20	04 10	04 48	05 19	05 42		
	10	330	12.9	10.9	300	48.9	11.1	24	29.7	8.0	54.9	52	03 31	04 17	04 53	05 31	05 57		
	11	345	13.0	11.8	315	19.0	11.1	24	37.7	7.9	54.8	50	03 40	04 23	04 58	05 41	06 10		
	12	0	13.1	N 11	12.6	329	49.1	11.0	N 24	45.6	7.7	54.8	45	03 58	04 37	05 07	06 04	06 38	
	13	15	13.3	13.5	344	19.1	10.9	24	53.3	7.7	54.8	N 40	04 13	04 47	05 15	06 22	06 59		
	14	30	13.4	14.3	358	49.0	11.0	25	01.0	7.5	54.8	35	04 25	04 56	05 22	06 38	07 17		
	15	45	13.5	15.2	13	19.0	10.8	25	08.5	7.4	54.8	30	04 34	05 03	05 28	06 51	07 33		
	16	60	13.7	16.1	27	48.8	10.9	25	15.9	7.3	54.8	20	04 49	05 16	05 38	07 14	07 59		
	17	75	13.8	16.9	42	18.7	10.8	25	23.2	7.1	54.7	N 10	05 01	05 26	05 47	07 34	08 22		
	18	90	13.9	N 11	17.8	56	48.5	10.7	N 25	30.3	7.0	54.7	0	05 10	05 34	05 56	07 53	08 43	
	19	105	14.1	18.7	71	18.2	10.7	25	37.3	6.9	54.7	S 10	05 18	05 42	06 04	08 12	09 05		
	20	120	14.2	19.5	85	47.9	10.7	25	44.2	6.8	54.7	20	05 24	05 50	06 12	08 32	09 28		
	21	135	14.3	20.4	100	17.6	10.6	25	51.0	6.6	54.7	30	05 29	05 58	06 22	08 56	09 54		
	22	150	14.5	21.2	114	47.2	10.6	25	57.6	6.6	54.7	35	05 32	06 02	06 27	09 10	10 10		
23	165	14.6	22.1	129	16.8	10.5	26	04.2	6.3	54.7	40	05 34	06 06	06 34	09 26	10 29			
20 SUNDAY	00	180	14.7	N 11	23.0	143	46.3	10.5	N 26	10.5	6.3	54.6	S 50	05 39	06 16	06 50	10 10	11 20	
	01	195	14.9	23.8	158	15.8	10.5	26	16.8	6.1	54.6	52	05 39	06 19	06 53	10 21	11 34		
	02	210	15.0	24.7	172	45.3	10.4	26	22.9	6.0	54.6	54	05 40	06 21	06 58	10 35	11 51		
	03	225	15.1	25.5	187	14.7	10.4	26	28.9	5.9	54.6	56	05 41	06 24	07 03	10 51	12 11		
	04	240	15.3	26.4	201	44.1	10.3	26	34.8	5.7	54.6	58	05 42	06 27	07 08	11 09	12 35		
	05	255	15.4	27.3	216	13.4	10.4	26	40.5	5.6	54.6	S 60	05 42	06 31	07 14	11 32	13 09		
	06	270	15.5	N 11	28.1	230	42.8	10.2	N 26	46.1	5.5	54.6							
	07	285	15.7	29.0	245	12.0	10.3	26	51.6	5.3	54.5								
	08	300	15.8	29.8	259	41.3	10.2	26	56.9	5.2	54.5								
	09	315	15.9	30.7	274	10.5	10.2	27	02.1	5.1	54.5								
	10	330	16.1	31.6	288	39.7	10.1	27	07.2	5.0	54.5								
	11	345	16.2	32.4	303	08.8	10.1	27	12.2	4.8	54.5								
	12	0	16.3	N 11	33.3	317	37.9	10.1	N 27	17.0	4.6	54.5	N 72	20 51	23 17	00 11	01 48		
	13	15	16.5	34.1	332	07.0	10.1	27	21.6	4.6	54.5	N 70	20 29	22 06	00 11	01 48	03 15		
	14	30	16.6	35.0	346	36.1	10.0	27	26.2	4.4	54.5	68	20 12	21 30	00 11	01 48	03 15		
	15	45	16.7	35.8	1	05.1	10.0	27	30.6	4.2	54.5	66	19 59	21 05	23 22	00 28	01 55		
	16	60	16.9	36.7	15	34.1	10.0	27	34.8	4.2	54.4	64	19 48	20 46	22 20	00 37	02 04		
	17	75	17.0	37.5	30	03.1	10.0	27	39.0	3.9	54.4	62	19 38	20 31	21 48	00 47	02 14		
	18	90	17.1	N 11	38.4	44	32.1	9.9	N 27	42.9	3.9	54.4	60	19 30	20 18	21 25	00 48	02 17	
	19	105	17.3	39.3	59	01.0	9.9	27	46.8	3.7	54.4	N 58	19 23	20 07	21 07	00 51	02 19		
	20	120	17.4	40.1	73	29.9	9.9	27	50.5	3.6	54.4	56	19 17	19 58	20 52	00 52	02 20		
	21	135	17.5	41.0	87	58.8	9.9	27	54.1	3.4	54.4	54	19 11	19 50	20 40	00 53	02 21		
	22	150	17.6	41.8	102	27.7	9.8	27	57.5	3.3	54.4	52	19 06	19 43	20 29	00 54	02 22		
23	165	17.8	42.7	116	56.5	9.8	28	00.8	3.2	54.4	50	19 01	19 36	20 20	00 55	02 23			
21 MONDAY	00	180	17.9	N 11	43.5	131	25.3	9.8	N 28	04.0	3.0	54.4	N 40	18 43	19 12	19 46	21 57	22 58	
	01	195	18.0	44.4	145	54.1	9.8	28	07.0	2.9	54.4	35	18 36	19 03	19 34	21 59	22 38		
	02	210	18.2	45.2	160	22.9	9.8	28	09.9	2.8	54.3	30	18 30	18 55	19 24	22 01	22 22		
	03	225	18.3	46.1	174	51.7	9.8	28	12.7	2.6	54.3	20	18 20	18 42	19 09	22 09	22 24		
	04	240	18.4	46.9	189	20.5	9.7	28	15.3	2.5	54.3	N 10	18 11	18 32	18 57	22 10	22 25		
	05	255	18.5	47.8	203	49.2	9.8	28	17.8	2.3	54.3	0	18 02	18 23	18 48	22 11	22 26		
	06	270	18.7	N 11	48.6	218	18.0	9.7	N 28	20.1	2.2	54.3	S 10	17 54	18 15	18 40	22 12	22 27	
	07	285	18.8	49.5	232	46.7	9.7	28	22.3	2.1	54.3	20	17 45	18 08	18 34	22 13	22 28		
	08	300	18.9	50.3	247	15.4	9.7	28	24.4	1.9	54.3	30	17 36	18 00	18 28	22 14	22 29		
	09	315	19.1	51.2	261	44.1	9.7	28	26.3	1.8	54.3	35	17 30	17 56	18 25	22 15	22 30		
	10	330	19.2	52.0	276	12.8	9.7	28	28.1	1.6	54.3	40	17 24	17 51	18 23	22 16	22 31		
	11	345	19.3	52.9	290	41.5	9.7	28	29.7	1.5	54.3	45	17 16	17 46	18 21	22 17	22 32		
	12	0	19.4	N 11	53.7	305	10.2	9.7	N 28	31.2	1.3	54.3	S 50	17 08	17 41	18 18	22 18	22 33	
	13	15	19.6	54.6	319	38.9	9.7	28	32.5	1.3	54.3	52	17 04	17 38	18 17	22 19	22 34		
	14	30	19.7	55.4	334	07.6	9.6	28	33.8	1.0	54.2	54	16 59	17 36	18 17	22 20	22 35		
	15	45	19.8	56.3	348	36.2	9.7	28	34.8	1.0	54.2	56	16 54	17 33	18 16	22 21	22 36		
	16	60	19.9	57.1	3	04.9	9.7	28	35.8	0.8	54.2	58	16 49	17 30	18 15	22 22	22 37		
	17	75	20.1	58.0	17	33.6	9.7	28	36.6	0.6	54.2	S 60	16 43	17 26	18 14	22 23	22 38		
	18	90	20.2	N 11	58.8	32	02.3	9.7	N 28	37.2	0.6	54.2							
	19	105	20.3	11 59.7	46	31.0	9.7	28	37.8	0.3	54.2								
	20	120	20.5	12 00.5	60	59.7	9.7	28	38.1	0.3	54.2								
	21	135	20.6	01 3	75	28.4	9.7	28	38.4	0.1	54.2								
	22	150	20.7	02.2	89	57.1	9.7	28	38.5	0.1	54.2								
23	165	20.8	03.0	104	25.8	9.7	28	38.4	0.1	54.2									
S.D. 15.9		d	0.9	S.D. 14.9		14.8	14.8												

G.M.T.	ARIES		VENUS -3.8		MARS -0.9		JUPITER -1.9		SATURN +0.6		STARS		
	G.H.A.		G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	° ' "		° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "		° ' "	° ' "
22	00	209 52.5	200 57.5 N	8 57.4	314 27.2 S	22 46.3	31 30.3 N	2 23.2	182 07.4 N	9 01.7	Acamar	315 43.9	S 40 25.6
	01	224 54.9	216 00.5	56.5	329 29.5	46.4	46 32.9	23.2	197 09.5	01.8	Achernar	335 51.8	S 57 23.5
	02	239 57.4	231 03.4	55.7	344 31.8	46.5	61 35.6	23.3	212 11.7	01.9	Acrux	173 46.4	S 62 56.0
	03	254 59.9	246 06.4	54.9	359 34.1	46.6	76 38.3	23.4	227 13.8	02.0	Adhara	255 38.9	S 28 55.9
	04	270 02.3	261 09.3	54.0	14 36.4	46.7	91 40.9	23.5	242 16.0	02.1	Aldebaran	291 28.0	N 16 27.0
	05	285 04.8	276 12.2	53.2	29 38.7	46.8	106 43.6	23.6	257 18.2	02.2			
	06	300 07.3	291 15.2 N	8 52.3	44 41.0 S	22 47.0	121 46.3 N	2 23.7	272 20.3 N	9 02.3	Alioth	166 49.0	N 56 07.6
	07	315 09.7	306 18.1	51.5	59 43.3	47.1	136 49.0	23.7	287 22.5	02.4	Alkaid	153 24.4	N 49 27.8
	08	330 12.2	321 21.0	50.7	74 45.6	47.2	151 51.6	23.8	302 24.7	02.6	Al Na'ir	28 25.5	S 47 06.6
	09	345 14.7	336 23.9	49.8	89 47.9	47.3	166 54.3	23.9	317 26.8	02.7	Alnilam	276 20.4	S 1 13.2
	10	0 17.1	351 26.9	49.0	104 50.2	47.4	181 57.0	24.0	332 29.0	02.8	Alphard	218 28.8	S 8 31.5
	11	15 19.6	6 29.8	48.2	119 52.6	47.5	196 59.6	24.1	347 31.2	02.9			
	12	30 22.1	21 32.7 N	8 47.3	134 54.9 S	22 47.6	212 02.3 N	2 24.1	2 33.3 N	9 03.0	Alphecca	126 38.8	N 26 48.8
	13	45 24.5	36 35.6	46.5	149 57.2	47.7	227 05.0	24.2	17 35.5	03.1	Alpheratz	358 18.5	N 28 55.1
	14	60 27.0	51 38.5	45.7	164 59.5	47.8	242 07.6	24.3	32 37.6	03.2	Altair	62 40.7	N 8 46.9
	15	75 29.4	66 41.4	44.8	180 01.8	47.9	257 10.3	24.4	47 39.8	03.3	Ankaa	353 48.7	S 42 28.3
	16	90 31.9	81 44.3	44.0	195 04.1	48.1	272 13.0	24.5	62 42.0	03.5	Antares	113 06.9	S 26 22.1
	17	105 34.4	96 47.2	43.2	210 06.5	48.2	287 15.6	24.5	77 44.1	03.6			
	18	120 36.8	111 50.1 N	8 42.4	225 08.8 S	22 48.3	302 18.3 N	2 24.6	92 46.3 N	9 03.7	Arcturus	146 25.7	N 19 20.3
	19	135 39.3	126 53.0	41.6	240 11.1	48.4	317 21.0	24.7	107 48.5	03.8	Atria	108 38.4	S 68 58.4
	20	150 41.8	141 55.8	40.7	255 13.4	48.5	332 23.6	24.8	122 50.6	03.9	Avior	234 31.9	S 59 24.8
	21	165 44.2	156 58.7	39.9	270 15.8	48.6	347 26.3	24.9	137 52.8	04.0	Bellatrix	279 08.0	N 6 19.5
	22	180 46.7	172 01.6	39.1	285 18.1	48.7	2 29.0	25.0	152 54.9	04.1	Betelgeuse	271 37.6	N 7 24.2
	23	195 49.2	187 04.5	38.3	300 20.4	48.8	17 31.6	25.0	167 57.1	04.2			
23	00	210 51.6	202 07.3 N	8 37.5	315 22.7 S	22 48.9	32 34.3 N	2 25.1	182 59.3 N	9 04.4	Canopus	264 11.2	S 52 40.8
	01	225 54.1	217 10.2	36.7	330 25.1	49.0	47 37.0	25.2	198 01.4	04.5	Capella	281 24.1	N 45 58.3
	02	240 56.6	232 13.0	35.9	345 27.6	49.2	62 39.6	25.3	213 03.6	04.6	Deneb	49 54.4	N 45 09.8
	03	255 59.0	247 15.9	35.1	0 29.7	49.3	77 42.3	25.4	228 05.8	04.7	Denebola	183 07.3	N 14 44.6
	04	271 01.5	262 18.7	34.2	15 32.1	49.4	92 45.0	25.4	243 07.9	04.8	Diphda	349 29.5	S 18 09.3
	05	286 03.9	277 21.6	33.4	30 34.4	49.5	107 47.6	25.5	258 10.1	04.9			
	06	301 06.4	292 24.4 N	8 32.6	45 36.7 S	22 49.6	122 50.3 N	2 25.6	273 12.2 N	9 05.0	Dubhe	194 31.6	N 61 55.2
	07	316 08.9	307 27.3	31.8	60 39.1	49.7	137 53.0	25.7	288 14.4	05.1	Elath	278 55.0	N 28 35.1
	08	331 11.3	322 30.1	31.0	75 41.4	49.8	152 55.6	25.8	303 16.6	05.2	Eltanin	91 01.3	N 51 29.1
	09	346 13.8	337 32.9	30.2	90 43.8	49.9	167 58.3	25.8	318 18.7	05.4	Enif	34 20.0	N 9 43.8
	10	1 16.3	352 35.7	29.4	105 46.1	50.0	183 01.0	25.9	333 20.9	05.5	Fomalhaut	16 00.8	S 29 47.1
	11	16 18.7	7 38.6	28.6	120 48.5	50.1	198 03.6	26.0	348 23.1	05.6			
	12	31 21.2	22 41.4 N	8 27.9	135 50.8 S	22 50.2	213 06.3 N	2 26.1	3 25.2 N	9 05.7	Gacrux	172 37.9	S 56 56.7
	13	46 23.7	37 44.2	27.1	150 53.2	50.4	228 09.0	26.1	18 27.4	05.8	Gienah	176 26.4	S 17 22.5
	14	61 26.1	52 47.0	26.3	165 55.5	50.5	243 11.6	26.2	33 29.5	05.9	Hadar	149 35.0	S 60 13.7
	15	76 28.6	67 49.8	25.5	180 57.9	50.6	258 14.3	26.3	48 31.7	06.0	Hamal	328 38.8	N 23 19.0
	16	91 31.1	82 52.6	24.7	196 00.2	50.7	273 16.9	26.4	63 33.9	06.1	Kaus Aust.	84 27.8	S 34 24.1
	17	106 33.5	97 55.4	23.9	211 02.6	50.8	288 19.6	26.5	78 36.0	06.3			
	18	121 36.0	112 58.2 N	8 23.1	226 04.9 S	22 50.9	303 22.3 N	2 26.5	93 38.2 N	9 06.4	Kochab	137 16.8	N 74 16.7
	19	136 38.4	128 01.0	22.3	241 07.3	51.0	318 24.9	26.6	108 40.4	06.5	Markab	14 11.8	N 15 02.2
	20	151 40.9	143 03.8	21.6	256 09.6	51.1	333 27.6	26.7	123 42.5	06.6	Menkar	314 50.2	N 3 58.2
	21	166 43.4	158 06.6	20.8	271 12.0	51.2	348 30.3	26.8	138 44.7	06.7	Menkent	148 46.7	S 36 13.4
	22	181 45.8	173 09.4	20.0	286 14.3	51.3	3 32.9	26.8	153 46.9	06.8	Miaplacidus	221 47.0	S 69 35.6
	23	196 48.3	188 12.1	19.2	301 16.7	51.4	18 35.6	26.9	168 49.0	06.9			
24	00	211 50.8	203 14.9 N	8 18.5	316 19.1 S	22 51.6	33 38.2 N	2 27.0	183 51.2 N	9 07.0	Mirfak	309 28.8	N 49 45.3
	01	226 53.2	218 17.7	17.7	331 21.4	51.7	48 40.9	27.1	198 53.3	07.1	Nunki	76 39.4	S 26 20.3
	02	241 55.7	233 20.4	16.9	346 23.8	51.8	63 43.6	27.2	213 55.5	07.3	Peacock	54 11.5	S 56 50.0
	03	256 58.2	248 23.2	16.1	1 26.2	51.9	78 46.2	27.2	228 57.7	07.4	Pollux	244 08.5	N 28 06.3
	04	272 00.6	263 25.9	15.4	16 28.5	52.0	93 48.9	27.3	243 59.8	07.5	Procyon	245 34.6	N 5 18.3
	05	287 03.1	278 28.7	14.6	31 30.9	52.1	108 51.5	27.4	259 02.0	07.6			
	06	302 05.6	293 31.4 N	8 13.8	46 33.3 S	22 52.2	123 54.2 N	2 27.5	274 04.2 N	9 07.7	Rasalhague	96 37.2	N 12 34.5
	07	317 08.0	308 34.2	13.1	61 35.6	52.3	138 56.9	27.5	289 06.3	07.8	Regulus	208 18.7	N 12 07.1
	08	332 10.5	323 36.9	12.3	76 38.0	52.4	153 59.5	27.6	304 08.5	07.9	Rigel	281 44.3	S 8 14.2
	09	347 12.9	338 39.7	11.6	91 40.4	52.5	169 02.2	27.7	319 10.6	08.0	Rigel Kent.	140 36.9	S 60 42.6
	10	2 15.4	353 42.4	10.8	106 42.8	52.6	184 04.8	27.8	334 12.8	08.1	Sabik	102 50.6	S 15 41.5
	11	17 17.9	8 45.1	10.1	121 45.1	52.7	199 07.5	27.8	349 15.0	08.3			
	12	32 20.3	23 47.9 N	8 09.3	136 47.5 S	22 52.9	214 10.1 N	2 27.9	4 17.1 N	9 08.4	Schedar	350 19.5	N 56 22.0
	13	47 22.8	38 50.6	08.5	151 49.9	53.0	229 12.8	28.0	19 19.3	08.5	Shaula	97 06.9	S 37 05.1
	14	62 25.3	53 53.3	07.8	166 52.3	53.1	244 15.5	28.1	34 21.5	08.6	Sirius	259 03.3	S 16 40.4
	15	77 27.7	68 56.0	07.0	181 54.7	53.2	259 18.1	28.2	49 23.6	08.7	Spica	159 06.1	S 11 00.3
	16	92 30.2	83 58.7	06.3	196 57.0	53.3	274 20.8	28.2	64 25.8	08.8	Suhail	223 17.0	S 43 18.7
	17	107 32.7	99 01.4	05.6	211 59.4	53.4	289 23.4	28.3	79 28.0	08.9			
	18	122 35.1	114 04.1 N	8 04.8	227 01.8 S	22 53.5	304 26.1 N	2 28.4	94 30.1 N	9 09.0	Vega	81 01.4	N 38 44.8
	19	137 37.6	129 06.8	04.1	242 04.2	53.6	319 28.7	28.5	109 32.3	09.2	Zuben'ubi	137 42.1	S 15 55.1
	20	152 40.1	144 09.5	03.3	257 06.6	53.7	334 31.4	28.5	124 34.4	09.3			
	21	167 42.5	159 12.2	02.6	272 09.0	53.8	349 34.1	28.6	139 36.6	09.4			
	22	182 45.0	174 14.9	01.9	287 11.4	53.9	4 36.7	28.7	154 38.8	09.5	Venus	351 15.7	10 30
	23	197 47.4	189 17.6	01.1	302 13.8	54.0	19 39.4	28.8	169 40.9	09.6	Mars	104 31.1	2 58
											Jupiter	181 42.7	21 46
											Saturn	332 07.7	11 46
Mer. Pass.		h m											
		9 54.9	v 2.8	d 0.8	v 2.3	d 0.1	v 2.7	d 0.1	v 2.2	d 0.1			

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise						
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	22	23	24	25		
d	h	°	'	°	'	°	'	°	h	m	h	m	h	m	h	m	h	m
TUESDAY	00	180 21-0	N 12 03-9	118 54-5	9-7	N 28 38-3	0-4	54-2	N 72	///	///	02 52	□	□	□	□		
	01	195 21-1	04-7	133 23-2	9-8	28 37-9	0-4	54-2	N 70	///	01 32	03 16	□	□	□	□		
	02	210 21-2	05-6	147 52-0	9-7	28 37-5	0-6	54-2	68	///	02 14	03 35	□	□	□	□	07 44	
	03	225 21-3	06-4	162 20-7	9-8	28 36-9	0-8	54-2	66	///	02 41	03 50	□	□	□	□	08 44	
	04	240 21-4	07-3	176 49-5	9-8	28 36-1	0-8	54-2	64	01 20	03 02	04 02	□	□	07 07	09 18		
	05	255 21-6	08-1	191 18-3	9-7	28 35-3	1-1	54-2	62	01 58	03 18	04 12	□	05 58	07 56	09 43		
	06	270 21-7	N 12 08-9	205 47-0	9-9	N 28 34-2	1-1	54-2	60	02 23	03 32	04 21	05 36	06 54	08 27	10 02		
	07	285 21-8	09-8	220 15-9	9-8	28 33-1	1-3	54-2	N 58	02 43	03 44	04 29	06 17	07 27	08 50	10 18		
	08	300 21-9	10-6	234 44-7	9-8	28 31-8	1-4	54-2	56	02 58	03 53	04 35	06 44	07 51	09 09	10 32		
	09	315 22-1	11-5	249 13-5	9-9	28 30-4	1-6	54-2	54	03 11	04 02	04 42	07 06	08 10	09 25	10 43		
	10	330 22-2	12-3	263 42-4	9-9	28 28-8	1-7	54-2	52	03 23	04 10	04 47	07 24	08 27	09 38	10 53		
	11	345 22-3	13-1	278 11-3	9-9	28 27-1	1-8	54-2	50	03 33	04 17	04 52	07 40	08 41	09 50	11 03		
	12	0 22-4	N 12 14-0	292 40-2	9-9	N 28 25-3	2-0	54-2	45	03 53	04 31	05 02	08 10	09 09	10 14	11 22		
	13	15 22-6	14-8	307 09-1	10-0	28 23-3	2-1	54-2	N 40	04 08	04 43	05 11	08 34	09 32	10 33	11 37		
	14	30 22-7	15-7	321 38-1	10-0	28 21-2	2-3	54-2	35	04 20	04 52	05 19	08 54	09 50	10 50	11 50		
	15	45 22-8	16-5	336 07-1	10-0	28 18-9	2-4	54-2	30	04 31	05 00	05 25	09 11	10 06	11 04	12 02		
	16	60 22-9	17-3	350 36-1	10-0	28 16-5	2-5	54-2	20	04 47	05 14	05 36	09 39	10 33	11 27	12 21		
	17	75 23-0	18-2	5 05-1	10-1	28 14-0	2-6	54-2	N 10	04 59	05 24	05 46	10 04	10 56	11 48	12 38		
	18	90 23-2	N 12 19-0	19 34-2	10-1	N 28 11-4	2-8	54-2	0	05 09	05 34	05 55	10 26	11 17	12 07	12 54		
	19	105 23-3	19-9	34 03-3	10-1	28 08-6	3-0	54-2	S 10	05 18	05 42	06 04	10 49	11 39	12 26	13 09		
	20	120 23-4	20-7	48 32-4	10-2	28 05-6	3-0	54-2	20	05 25	05 51	06 13	11 14	12 02	12 46	13 26		
	21	135 23-5	21-5	63 01-6	10-1	28 02-6	3-2	54-2	30	05 31	05 59	06 24	11 42	12 28	13 09	13 45		
	22	150 23-6	22-4	77 30-7	10-3	27 59-4	3-4	54-2	35	05 34	06 04	06 30	11 59	12 44	13 23	13 56		
	23	165 23-8	23-2	92 00-0	10-2	27 56-0	3-4	54-2	40	05 37	06 09	06 37	12 19	13 02	13 38	14 08		
									45	05 40	06 14	06 45	12 42	13 24	13 57	14 23		
WEDNESDAY	00	180 23-9	N 12 24-0	106 29-2	10-3	N 27 52-6	3-6	54-2	S 50	05 43	06 21	06 54	13 13	13 51	14 20	14 41		
	01	195 24-0	24-9	120 58-5	10-3	27 49-0	3-7	54-2	52	05 44	06 23	06 58	13 28	14 05	14 31	14 50		
	02	210 24-1	25-7	135 27-8	10-4	27 45-3	3-9	54-2	54	05 45	06 27	07 03	13 46	14 20	14 43	14 59		
	03	225 24-2	26-5	149 57-2	10-4	27 41-4	4-0	54-2	56	05 46	06 30	07 09	14 07	14 39	14 58	15 10		
	04	240 24-4	27-4	164 26-6	10-4	27 37-4	4-1	54-2	58	05 47	06 33	07 15	14 35	15 01	15 15	15 22		
	05	255 24-5	28-2	178 56-0	10-5	27 33-3	4-3	54-2	S 60	05 49	06 37	07 21	15 14	15 30	15 35	15 36		
	06	270 24-6	N 12 29-0	193 25-5	10-5	N 27 29-0	4-3	54-2										
	07	285 24-7	29-9	207 55-0	10-5	27 24-7	4-6	54-2	Lat.	Sun-set	Twilight		Moonset					
	08	300 24-8	30-7	222 24-5	10-6	27 20-1	4-6	54-2			Civil	Naut.	22	23	24	25		
	09	315 25-0	31-5	236 54-1	10-6	27 15-5	4-8	54-2	°	h m	h m	h m	h m	h m	h m	h m	h m	
	10	330 25-1	32-4	251 23-7	10-7	27 10-7	4-9	54-2	N 72	21 09	///	///	□	□	□	□		
	11	345 25-2	33-2	265 53-4	10-7	27 05-8	5-0	54-2	N 70	20 44	22 34	///	□	□	□	□		
	12	0 25-3	N 12 34-0	280 23-1	10-8	N 27 00-8	5-2	54-2	68	20 25	21 48	///	□	□	□	□	05 55	
	13	15 25-4	34-9	294 52-9	10-8	26 55-6	5-2	54-2	66	20 09	21 19	///	□	□	□	□	04 54	
	14	30 25-5	35-7	309 22-7	10-8	26 50-4	5-4	54-3	64	19 57	20 58	22 44	□	□	04 51	04 19		
	15	45 25-7	36-5	323 52-5	10-9	26 45-0	5-6	54-3	62	19 46	20 41	22 04	□	04 16	04 01	03 53		
	16	60 25-8	37-4	338 22-4	10-9	26 39-4	5-6	54-3	60	19 37	20 27	21 37	02 51	03 20	03 30	03 33		
	17	75 25-9	38-2	352 52-3	11-0	26 33-8	5-8	54-3	N 58	19 30	20 15	21 17	02 11	02 47	03 06	03 17		
	18	90 26-0	N 12 39-0	7 22-3	11-1	N 26 28-0	5-9	54-3	56	19 23	20 05	21 01	01 43	02 23	02 47	03 03		
	19	105 26-1	39-8	21 52-4	11-0	26 22-1	6-0	54-3	54	19 16	19 56	20 47	01 21	02 03	02 31	02 50		
	20	120 26-2	40-7	36 22-4	11-1	26 16-1	6-2	54-3	52	19 11	19 48	20 36	01 03	01 46	02 17	02 40		
	21	135 26-4	41-5	50 52-5	11-2	26 09-9	6-3	54-3	50	19 06	19 41	20 26	00 48	01 32	02 05	02 30		
	22	150 26-5	42-3	65 22-7	11-2	26 03-6	6-4	54-3	45	18 55	19 27	20 05	00 17	01 03	01 40	02 09		
	23	165 26-6	43-2	79 52-9	11-3	25 57-2	6-5	54-3	N 40	18 46	19 15	19 50	24 40	00 40	01 20	01 53		
	THURSDAY	00	180 26-7	N 12 44-0	94 23-2	11-3	N 25 50-7	6-6	54-3	35	18 39	19 05	19 37	24 21	00 21	01 03	01 39	
01		195 26-8	44-8	108 53-5	11-4	25 44-1	6-8	54-3	30	18 32	18 57	19 27	24 05	00 05	00 48	01 26		
02		210 26-9	45-6	123 23-9	11-4	25 37-3	6-8	54-4	20	18 21	18 43	19 10	23 37	24 23	00 23	01 05		
03		225 27-1	46-5	137 54-3	11-4	25 30-5	7-0	54-4	N 10	18 11	18 32	18 58	23 13	24 02	00 02	00 47		
04		240 27-2	47-3	152 24-7	11-5	25 23-5	7-2	54-4	0	18 02	18 23	18 47	22 51	23 41	24 30	00 30		
05		255 27-3	48-1	166 55-2	11-6	25 16-3	7-2	54-4	S 10	17 53	18 14	18 39	22 29	23 21	24 12	00 12		
06		270 27-4	N 12 48-9	181 25-8	11-6	N 25 09-1	7-3	54-4	20	17 43	18 06	18 32	22 05	22 59	23 53	24 47		
07		285 27-5	49-8	195 56-4	11-7	25 01-8	7-5	54-4	30	17 32	17 57	18 25	21 37	22 34	23 32	24 30		
08		300 27-6	50-6	210 27-1	11-7	24 54-3	7-6	54-4	35	17 26	17 52	18 22	21 21	22 19	23 19	24 20		
09		315 27-7	51-4	224 57-8	11-8	24 46-7	7-7	54-4	40	17 20	17 47	18 19	21 01	22 01	23 04	24 08		
10		330 27-9	52-2	239 28-6	11-8	24 39-0	7-8	54-5	45	17 11	17 42	18 16	20 38	21 40	22 46	23 55		
11		345 28-0	53-1	253 59-4	11-8	24 31-2	7-9	54-5	S 50	17 02	17 35	18 13	20 07	21 13	22 24	23 38		
12		0 28-1	N 12 53-9	268 30-2	11-9	N 24 23-3	8-0	54-5	52	16 57	17 32	18 12	19 52	21 00	22 14	23 30		
13		15 28-2	54-7	283 01-1	12-0	24 15-3	8-2	54-5	54	16 53	17 29	18 11	19 35	20 45	22 02	23 21		
14		30 28-3	55-5	297 32-1	12-0	24 07-1	8-2	54-5	56	16 47	17 26	18 09	19 13	20 27	21 48	23 11		
15		45 28-4	56-4	312 03-1	12-1	23 58-9	8-4	54-5	58	16 41	17 22	18 08	18 46	20 05	21 32	23 00		
16		60 28-5	57-2	326 34-2	12-1	23 50-5	8-5	54-5	S 60	16 34	17 18	18 07	18 07	19 37	21 12	22 47		
17		75 28-7	58-0	341 05-3	12-2	23 42-0	8-6	54-6										

	ARIES	VENUS	-4.0	MARS	-1.0	JUPITER	-1.9	SATURN	+0.6	STARS		
G.M.T.	G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "		° ' "	° ' "
25 00	212 49.9	204 20.3 N	8 00.4	317 16.1 S	22 54.1	34 42.0 N	2 28.8	184 43.1 N	9 09.7	Acamar	315 43.9	S 40 25.6
	01 227 52.4	219 22.9	7 59.7	332 18.5	54.3	49 44.7	28.9	199 45.3	09.8	Achernar	335 51.8	S 57 23.5
	02 242 54.8	234 25.6	58.9	347 20.9	54.4	64 47.3	29.0	214 47.4	09.9	Acruz	173 46.5	S 62 56.0
	03 257 57.3	249 28.3	58.2	2 23.3	54.5	79 50.0	29.1	229 49.6	10.0	Adhara	255 38.9	S 28 55.9
	04 272 59.8	264 30.9	57.5	17 25.7	54.6	94 52.6	29.1	244 51.7	10.2	Aldebaran	291 28.0	N 16 27.0
05 288 02.2	279 33.6	56.7	32 28.1	54.7	109 55.3	29.2	259 53.9	10.3				
06 303 04.7	294 36.2 N	7 56.0	47 30.5 S	22 54.8	124 58.0 N	2 29.3	274 56.1 N	9 10.4	Alioth	166 49.0	N 56 07.6	
07 318 07.2	309 38.9	55.3	62 32.9	54.9	140 00.6	29.3	289 58.2	10.5	Alkaid	153 24.4	N 49 27.9	
08 333 09.6	324 41.5	54.6	77 35.3	55.0	155 03.3	29.4	305 00.4	10.6	Al Na'ir	28 25.5	S 47 06.5	
F 09 348 12.1	339 44.2	53.9	92 37.8	55.1	170 05.9	29.5	320 02.6	10.7	Alnilam	276 20.4	S 1 13.2	
R 10 3 14.6	354 46.8	53.2	107 40.2	55.2	185 08.6	29.6	335 04.7	10.8	Alphard	218 28.8	S 8 31.5	
I 11 18 17.0	9 49.5	52.4	122 42.6	55.3	200 11.2	29.6	350 06.9	10.9				
D 12 33 19.5	24 52.1 N	7 51.7	137 45.0 S	22 55.4	215 13.9 N	2 29.7	5 09.1 N	9 11.0	Alphecca	126 38.8	N 26 48.8	
A 13 48 21.9	39 54.7	51.0	152 47.4	55.5	230 16.5	29.8	20 11.2	11.1	Alpheratz	358 18.4	N 28 55.1	
Y 14 63 24.4	54 57.3	50.3	167 49.8	55.6	245 19.2	29.9	35 13.4	11.3	Altair	62 40.7	N 8 46.9	
15 78 26.9	70 00.0	49.6	182 52.2	55.8	260 21.8	29.9	50 15.5	11.4	Ankaa	353 48.7	S 42 28.3	
16 93 29.3	85 02.6	48.9	197 54.6	55.9	275 24.5	30.0	65 17.7	11.5	Antares	113 06.9	S 26 22.1	
17 108 31.8	100 05.2	48.2	212 57.1	56.0	290 27.1	30.1	80 19.9	11.6				
18 123 34.3	115 07.8 N	7 47.5	227 59.5 S	22 56.1	305 29.8 N	2 30.2	95 22.0 N	9 11.7	Arcturus	146 25.7	N 19 20.3	
19 138 36.7	130 10.4	46.8	243 01.9	56.2	320 32.4	30.2	110 24.2	11.8	Atria	108 38.4	S 68 58.4	
20 153 39.2	145 13.0	46.1	258 04.3	56.3	335 35.1	30.3	125 26.4	11.9	Avior	234 31.9	S 59 24.8	
21 168 41.7	160 15.6	45.4	273 06.7	56.4	350 37.7	30.4	140 28.5	12.0	Bellatrix	279 08.0	N 6 19.5	
22 183 44.1	175 18.2	44.7	288 09.2	56.5	5 40.4	30.4	155 30.7	12.1	Betelgeuse	271 37.6	N 7 24.2	
23 198 46.6	190 20.8	44.0	303 11.6	56.6	20 43.0	30.5	170 32.9	12.3				
26 00	213 49.1	205 23.4 N	7 43.3	318 14.0 S	22 56.7	35 45.7 N	2 30.6	185 35.0 N	9 12.4	Canopus	264 11.2	S 52 40.8
	01 228 51.5	220 26.0	42.6	333 16.4	56.8	50 48.3	30.7	200 37.2	12.5	Capella	281 24.1	N 45 58.3
	02 243 54.0	235 28.5	41.9	348 18.9	56.9	65 51.0	30.7	215 39.3	12.6	Deneb	49 54.3	N 45 09.8
	03 258 56.4	250 31.1	41.2	3 21.3	57.0	80 53.6	30.8	230 41.5	12.7	Denebola	183 07.3	N 14 44.6
	04 273 58.9	265 33.7	40.6	18 23.7	57.1	95 56.3	30.9	245 43.7	12.8	Diphda	349 29.5	S 18 09.3
05 289 01.4	280 36.2	39.9	33 26.2	57.3	110 58.9	31.0	260 45.8	12.9				
06 304 03.8	295 38.8 N	7 39.2	48 28.6 S	22 57.4	126 01.6 N	2 31.0	275 48.0 N	9 13.0	Dubhe	194 31.6	N 61 55.2	
S 07 319 06.3	310 41.4	38.5	63 31.0	57.5	141 04.2	31.1	290 50.2	13.1	El Nath	278 55.0	N 28 35.1	
A 08 334 08.8	325 43.9	37.8	78 33.5	57.6	156 06.9	31.2	305 52.3	13.2	Eltanin	91 01.3	N 51 29.1	
T 09 349 11.2	340 46.5	37.2	93 35.9	57.7	171 09.5	31.2	320 54.5	13.4	Enif	34 20.0	N 9 43.8	
U 10 4 13.7	355 49.0	36.5	108 38.3	57.8	186 12.2	31.3	335 56.6	13.5	Fomalhaut	16 00.8	S 29 47.1	
11 19 16.2	10 51.6	35.8	123 40.8	57.9	201 14.8	31.4	350 58.8	13.6				
R 12 34 18.6	25 54.1 N	7 35.2	138 43.2 S	22 58.0	216 17.5 N	2 31.5	6 01.0 N	9 13.7	Gacrux	172 38.0	S 56 56.7	
D 13 49 21.1	40 56.6	34.5	153 45.7	58.1	231 20.1	31.5	21 03.1	13.8	Gienah	176 26.4	S 17 22.5	
A 14 64 23.5	55 59.2	33.8	168 48.1	58.2	246 22.7	31.6	36 05.3	13.9	Hadar	149 35.0	S 60 13.7	
Y 15 79 26.0	71 01.7	33.2	183 50.6	58.3	261 25.4	31.7	51 07.5	14.0	Hamal	328 38.8	N 23 19.0	
16 94 28.5	86 04.2	32.5	198 53.0	58.4	276 28.0	31.7	66 09.6	14.1	Kaus Aust.	84 27.8	S 34 24.1	
17 109 30.9	101 06.7	31.8	213 55.5	58.5	291 30.7	31.8	81 11.8	14.2				
18 124 33.4	116 09.3 N	7 31.2	228 57.9 S	22 58.6	306 33.3 N	2 31.9	96 14.0 N	9 14.4	Kochab	137 16.8	N 74 16.7	
19 139 35.9	131 11.8	30.5	244 00.4	58.7	321 36.0	31.9	111 16.1	14.5	Markab	14 11.8	N 15 02.2	
20 154 38.3	146 14.3	29.9	259 02.8	58.8	336 38.6	32.0	126 18.3	14.6	Menkar	314 50.2	N 3 58.2	
21 169 40.8	161 16.8	29.2	274 05.3	59.0	351 41.3	32.1	141 20.4	14.7	Menkent	148 46.7	S 36 13.4	
22 184 43.3	176 19.3	28.6	289 07.7	59.1	6 43.9	32.2	156 22.6	14.8	Miaplacidus	221 47.1	S 69 35.6	
23 199 45.7	191 21.8	27.9	304 10.2	59.2	21 46.6	32.2	171 24.8	14.9				
27 00	214 48.2	206 24.3 N	7 27.3	319 12.6 S	22 59.3	36 49.2 N	2 32.3	186 26.9 N	9 15.0	Mirfak	309 28.8	N 49 45.3
	01 229 50.7	221 26.8	26.6	334 15.1	59.4	51 51.8	32.4	201 29.1	15.1	Nunki	76 39.4	S 26 20.3
	02 244 53.1	236 29.3	26.0	349 17.6	59.5	66 54.5	32.4	216 31.3	15.2	Peacock	54 11.4	S 56 50.0
	03 259 55.6	251 31.7	25.3	4 20.0	59.6	81 57.1	32.5	231 33.4	15.3	Pollux	244 08.5	N 28 06.3
	04 274 58.0	266 34.2	24.7	19 22.5	59.7	96 59.8	32.6	246 35.6	15.5	Procyon	245 34.6	N 5 18.3
05 290 00.5	281 36.7	24.1	34 25.0	59.8	112 02.4	32.6	261 37.8	15.6				
06 305 03.0	296 39.2 N	7 23.4	49 27.4 S	22 59.9	127 05.1 N	2 32.7	276 39.9 N	9 15.7	Rasalhague	96 37.1	N 12 34.6	
07 320 05.4	311 41.6	22.8	64 29.9	23 00.0	142 07.7	32.8	291 42.1	15.8	Regulus	208 18.7	N 12 07.1	
08 335 07.9	326 44.1	22.2	79 32.4	00.1	157 10.3	32.8	306 44.2	15.9	Rigel	281 44.3	S 8 14.2	
S 09 350 10.4	341 46.6	21.5	94 34.8	00.2	172 13.0	32.9	321 46.4	16.0	Rigel Kent.	140 36.9	S 60 42.6	
U 10 5 12.8	356 49.0	20.9	109 37.3	00.3	187 15.6	33.0	336 48.6	16.1	Sabik	102 50.5	S 15 41.5	
11 20 15.3	11 51.5	20.3	124 39.8	00.4	202 18.3	33.0	351 50.7	16.2				
D 12 35 17.8	26 53.9 N	7 19.7	139 42.3 S	23 00.5	217 20.9 N	2 33.1	6 52.9 N	9 16.3	Schedar	350 19.4	N 56 22.0	
A 13 50 20.2	41 56.4	19.0	154 44.7	00.6	232 23.5	33.2	21 55.1	16.5	Shaula	97 06.9	S 37 05.1	
Y 14 65 22.7	56 58.8	18.4	169 47.2	00.8	247 26.2	33.3	36 57.2	16.6	Sirius	259 03.3	S 16 40.4	
15 80 25.1	72 01.2	17.8	184 49.7	00.9	262 28.8	33.3	51 59.4	16.7	Spica	159 06.1	S 11 00.3	
16 95 27.6	87 03.7	17.2	199 52.2	01.0	277 31.5	33.4	67 01.6	16.8	Suhail	223 17.1	S 43 18.7	
17 110 30.1	102 06.1	16.6	214 54.7	01.1	292 34.1	33.5	82 03.7	16.9				
18 125 32.5	117 08.5 N	7 15.9	229 57.1 S	23 01.2	307 36.7 N	2 33.5	97 05.9 N	9 17.0	Vega	81 01.4	N 38 44.8	
19 140 35.0	132 10.9	15.3	244 59.6	01.3	322 39.4	33.6	112 08.0	17.1	Zuben'ubi	137 42.1	S 15 55.1	
20 155 37.5	147 13.4	14.7	260 02.1	01.4	337 42.0	33.7	127 10.2	17.2				
21 170 39.9	162 15.8	14.1	275 04.6	01.5	352 44.6	33.7	142 12.4	17.3		S.H.A.	Mer. Pass.	
22 185 42.4	177 18.2	13.5	290 07.1	01.6	7 47.3	33.8	157 14.5	17.4	Venus	351 34.3	10 17	
23 200 44.9	192 20.6	12.9	305 09.6	01.7	22 49.9	33.9	172 16.7	17.6	Mars	104 24.9	2 47	
									Jupiter	181 56.6	21 33	
									Saturn	331 45.9	11 36	
Mer. Pass.	9 43.1	v 2.5	d 0.7	v 2.4	d 0.1	v 2.6	d 0.1	v 2.2	d 0.1			

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise							
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.		Naut.	Civil		25	26	27	28				
d	h	°	'	°	'	°	'	°	'	°	'	h	m	h	m	h	m	h	m	
25	00	180	29.4	N13	03.7	82	44.6	12.5	N22	39.6	9.3	54.7	N 72	///	///	02 32	□	09 06	11 58	14 15
	01	195	29.5		04.5	97	16.1	12.6	22	30.3	9.5	54.7	N 70	///	00 56	03 00	□	09 57	12 17	14 21
	02	210	29.7		05.4	111	47.7	12.6	22	20.8	9.5	54.7	68	///	01 53	03 22	□ 44	10 28	12 31	14 26
	03	225	29.8		06.2	126	19.3	12.7	22	11.3	9.6	54.7	66	///	02 26	03 38	08 44	10 51	12 42	14 30
	04	240	29.9		07.0	140	51.0	12.7	22	01.7	9.8	54.7	64	00 48	02 49	03 51	09 18	11 09	12 52	14 33
05	255	30.0		07.8	155	22.7	12.8	21	51.9	9.9	54.8	62	01 39	03 07	04 03	09 43	11 23	13 00	14 36	
06	270	30.1	N13	08.6	169	54.5	12.8	N21	42.0	9.9	54.8	60	02 09	03 22	04 12	10 02	11 35	13 07	14 38	
07	285	30.2		09.4	184	26.3	12.9	21	32.1	10.1	54.8	N 58	02 31	03 35	04 21	10 18	11 46	13 13	14 41	
08	300	30.3		10.3	198	58.2	12.9	21	22.0	10.1	54.8	56	02 48	03 45	04 28	10 32	11 55	13 19	14 43	
F 09	315	30.4		11.1	213	30.1	12.9	21	11.9	10.3	54.8	54	03 03	03 55	04 35	10 43	12 03	13 23	14 44	
R 10	330	30.5		11.9	228	02.0	13.0	21	01.6	10.3	54.8	52	03 15	04 03	04 41	10 53	12 10	13 28	14 46	
I 11	345	30.6		12.7	242	34.0	13.1	20	51.3	10.5	54.9	50	03 25	04 10	04 46	11 03	12 17	13 32	14 47	
D 12	0 30.7	N13	13.5	257	06.1	13.1	N20	40.8	10.5	54.9	45	03 47	04 26	04 57	11 22	12 31	13 40	14 50		
A 13	15 30.9		14.3	271	38.2	13.2	20	30.3	10.7	54.9	N 40	04 03	04 38	05 07	11 37	12 42	13 47	14 53		
Y 14	30 31.0		15.1	286	10.4	13.2	20	19.6	10.7	54.9	35	04 16	04 48	05 15	11 50	12 52	13 53	14 55		
15	45 31.1		16.0	300	42.6	13.2	20	08.9	10.8	55.0	30	04 27	04 57	05 22	12 02	13 00	13 58	14 57		
16	60 31.2		16.8	315	14.8	13.3	19	58.1	11.0	55.0	20	04 45	05 11	05 34	12 21	13 15	14 07	15 01		
17	75 31.3		17.6	329	47.1	13.3	19	47.1	11.0	55.0	N 10	04 58	05 23	05 45	12 38	13 27	14 15	15 04		
18	90 31.4	N13	18.4	344	19.4	13.4	N19	36.1	11.1	55.0	0	05 08	05 33	05 54	12 54	13 39	14 23	15 06		
19	105 31.5		19.2	358	51.8	13.4	19	25.0	11.2	55.0	S 10	05 18	05 42	06 04	13 09	13 51	14 30	15 09		
20	120 31.6		20.0	13	24.2	13.5	19	13.8	11.3	55.1	20	05 26	05 52	06 14	13 26	14 03	14 38	15 12		
21	135 31.7		20.8	27	56.7	13.5	19	02.5	11.4	55.1	30	05 33	06 01	06 26	13 45	14 17	14 47	15 16		
22	150 31.8		21.6	42	29.2	13.5	18	51.1	11.4	55.1	35	05 36	06 06	06 32	13 56	14 25	14 52	15 17		
23	165 31.9		22.5	57	01.7	13.6	18	39.7	11.6	55.1	40	05 40	06 12	06 40	14 08	14 34	14 58	15 20		
											45	05 43	06 18	06 48	14 23	14 45	15 04	15 22		
26	00	180	32.0	N13	23.3	71	34.3	13.6	N18	28.1	11.7	55.2	S 50	05 47	06 25	06 59	14 41	14 58	15 12	15 25
	01	195	32.1		24.1	86	06.9	13.7	18	16.4	11.7	55.2	52	05 48	06 28	07 03	14 50	15 04	15 16	15 27
	02	210	32.2		24.9	100	39.6	13.7	18	04.7	11.8	55.2	54	05 50	06 32	07 09	14 59	15 11	15 20	15 28
	03	225	32.3		25.7	115	12.3	13.8	17	52.9	11.9	55.2	56	05 52	06 35	07 15	15 10	15 18	15 24	15 30
	04	240	32.5		26.5	129	45.1	13.7	17	41.0	12.0	55.3	58	05 53	06 39	07 21	15 22	15 26	15 29	15 32
05	255	32.6		27.3	144	17.8	13.9	17	29.0	12.1	55.3	S 60	05 55	06 44	07 28	15 36	15 36	15 35	15 34	
06	270	32.7	N13	28.1	158	50.7	13.8	N17	16.9	12.2	55.3	Lat.	Sun-set	Twilight		Moonset				
07	285	32.8		28.9	173	23.5	13.9	17	04.7	12.2	55.3			Civil	Naut.	25	26	27	28	
08	300	32.9		29.7	187	56.4	13.9	16	52.5	12.4	55.4	°	h m	h m	h m	h m	h m	h m	h m	
A 09	315	33.0		30.5	202	29.3	14.0	16	40.1	12.4	55.4	N 72	21 29	///	///	□	06 12	04 52	04 09	
R 10	330	33.1		31.3	217	02.3	14.0	16	27.7	12.5	55.4	N 70	20 59	23 16	///	///	□ 55	05 19	04 32	04 00
I 11	345	33.2		32.1	231	35.3	14.0	16	15.2	12.6	55.4	68	20 37	22 09	///	///	05 55	04 46	04 16	03 53
D 12	0 33.3	N13	32.9	246	08.3	14.1	N16	02.6	12.6	55.5	66	20 20	21 34	///	///	04 54	04 22	04 02	03 46	
A 13	15 33.4		33.7	260	41.4	14.1	15	50.0	12.7	55.5	64	20 06	21 10	23 21	04 19	04 03	03 51	03 41		
Y 14	30 33.5		34.5	275	14.5	14.1	15	37.3	12.9	55.5	62	19 55	20 51	22 22	03 53	03 47	03 42	03 36		
15	45 33.6		35.4	289	47.6	14.1	15	24.4	12.9	55.5	60	19 45	20 36	21 50	03 33	03 34	03 33	03 32		
16	60 33.7		36.2	304	20.7	14.2	15	11.5	12.9	55.6	N 58	19 36	20 23	21 28	03 17	03 23	03 26	03 29		
17	75 33.8		37.0	318	53.9	14.2	14	58.6	13.1	55.6	56	19 29	20 12	21 10	03 03	03 13	03 20	03 25		
18	90 33.9	N13	37.8	333	27.1	14.3	N14	45.5	13.1	55.6	54	19 22	20 02	20 55	02 50	03 04	03 14	03 22		
19	105 34.0		38.6	348	00.4	14.2	14	32.4	13.2	55.7	52	19 16	19 54	20 43	02 40	02 56	03 09	03 20		
20	120 34.1		39.4	2	33.6	14.3	14	19.2	13.2	55.7	50	19 11	19 46	20 32	02 30	02 49	03 04	03 17		
21	135 34.2		40.2	17	06.9	14.3	14	06.0	13.4	55.7	45	18 59	19 31	20 10	02 09	02 33	02 54	03 12		
22	150 34.3		41.0	31	40.2	14.4	13	52.6	13.4	55.7	N 40	18 49	19 18	19 53	01 53	02 21	02 45	03 07		
23	165 34.4		41.8	46	13.6	14.3	13	39.2	13.5	55.8	35	18 41	19 08	19 40	01 39	02 10	02 38	03 04		
27	00	180	34.5	N13	42.6	60	46.9	14.4	N13	25.7	13.5	55.8	N 40	18 49	19 18	19 53	01 53	02 21	02 45	03 07
	01	195	34.6		43.4	75	20.3	14.4	13	12.2	13.7	55.8	35	18 41	19 08	19 40	01 39	02 10	02 38	03 04
	02	210	34.7		44.2	89	53.7	14.4	12	58.5	13.6	55.9	30	18 34	18 59	19 29	01 26	02 00	02 31	03 00
	03	225	34.8		45.0	104	27.1	14.4	12	44.9	13.8	55.9	20	18 22	18 45	19 11	01 05	01 44	02 20	02 54
	04	240	34.9		45.8	119	00.5	14.5	12	31.1	13.8	55.9	N 10	18 11	18 33	18 58	00 47	01 29	02 10	02 49
05	255	35.0		46.6	133	34.0	14.5	12	17.3	13.9	55.9	0	18 01	18 23	18 47	00 30	01 16	02 00	02 44	
06	270	35.1	N13	47.4	148	07.5	14.5	N12	03.4	14.0	56.0	S 10	17 52	18 13	18 38	00 12	01 02	01 50	02 38	
07	285	35.2		48.2	162	41.0	14.5	11	49.4	14.0	56.0	20	17 41	18 04	18 30	24 47	00 47	01 40	02 33	
08	300	35.3		49.0	177	14.5	14.5	11	35.4	14.1	56.0	30	17 30	17 54	18 22	24 30	00 30	01 28	02 26	
09	315	35.4		49.7	191	48.0	14.5	11	21.3	14.2	56.1	35	17 23	17 49	18 19	24 20	00 20	01 21	02 23	
10	330	35.5		50.5	206	21.5	14.6	11	07.1	14.2	56.1	40	17 15	17 43	18					

G.M.T.	ARIES			VENUS -4.1			MARS -1.1			JUPITER -1.9			SATURN +0.6			STARS		
	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o			
28 00	215 47.3	207 23.0 N	7 12.3	320 12.1 S	23 01.8		37 52.6 N	2 33.9		187 18.9 N	9 17.7		Acamar	315 43.9	S 40 25.6			
01	230 49.8	222 25.4	11.7	335 14.6	01.9		52 55.2	34.0		202 21.0	17.8		Achernar	335 51.7	S 57 23.4			
02	245 52.2	237 27.8	11.1	350 17.1	02.0		67 57.8	34.1		217 23.2	17.9		Acrux	173 46.5	S 62 56.0			
03	260 54.7	252 30.2	10.5	5 19.6	02.1		83 00.5	34.1		232 25.4	18.0		Adhara	255 38.9	S 28 55.8			
04	275 57.2	267 32.6	09.9	20 22.1	02.2		98 03.1	34.2		247 27.5	18.1		Aldebaran	291 28.0	N 16 27.0			
05	290 59.6	282 35.0	09.3	35 24.6	02.3		113 05.7	34.3		262 29.7	18.2							
06	306 02.1	297 37.3 N	7 08.7	50 27.1 S	23 02.4		128 08.4 N	2 34.3		277 31.8 N	9 18.3		Alioth	166 49.0	N 56 07.6			
07	321 04.6	312 39.7	08.1	65 29.6	02.5		143 11.0	34.4		292 34.0	18.4		Alkaid	153 24.4	N 49 27.9			
08	336 07.0	327 42.1	07.6	80 32.1	02.6		158 13.6	34.5		307 36.2	18.5		Al Na'ir	28 25.4	S 47 06.5			
09	351 09.5	342 44.5	07.0	95 34.6	02.7		173 16.3	34.5		322 38.3	18.7		Alnilam	276 20.4	S 1 13.2			
10	6 12.0	357 46.8	06.4	110 37.1	02.9		188 18.9	34.6		337 40.5	18.8		Alphard	218 28.8	S 8 31.5			
11	21 14.4	12 49.2	05.8	125 39.6	03.0		203 21.6	34.6		352 42.7	18.9							
12	36 16.9	27 51.5 N	7 05.2	140 42.1 S	23 03.1		218 24.2 N	2 34.7		7 44.8 N	9 19.0		Alphecca	126 38.8	N 26 48.8			
13	51 19.4	42 53.9	04.6	155 44.6	03.2		233 26.8	34.8		22 47.0	19.1		Alpheratz	358 18.4	N 28 55.1			
14	66 21.8	57 56.2	04.1	170 47.1	03.3		248 29.5	34.8		37 49.2	19.2		Altair	62 40.7	N 8 46.9			
15	81 24.3	72 58.6	03.5	185 49.6	03.4		263 32.1	34.9		52 51.3	19.3		Ankaa	353 48.7	S 42 28.3			
16	96 26.7	88 00.9	02.9	200 52.1	03.5		278 34.7	35.0		67 53.5	19.4		Antares	113 06.9	S 26 22.1			
17	111 29.2	103 03.3	02.4	215 54.7	03.6		293 37.4	35.0		82 55.6	19.5							
18	126 31.7	118 05.6 N	7 01.8	230 57.2 S	23 03.7		308 40.0 N	2 35.1		97 57.8 N	9 19.6		Arcturus	146 25.7	N 19 20.3			
19	141 34.1	133 07.9	01.2	245 59.7	03.8		323 42.6	35.2		113 00.0	19.7		Atria	108 38.4	S 68 58.4			
20	156 36.6	148 10.3	00.7	261 02.2	03.9		338 45.3	35.2		128 02.1	19.9		Avior	234 31.9	S 59 24.8			
21	171 39.1	163 12.6	7 00.1	276 04.7	04.0		353 47.9	35.3		143 04.3	20.0		Bellatrix	279 08.0	N 6 19.5			
22	186 41.5	178 14.9	6 59.5	291 07.3	04.1		8 50.5	35.4		158 06.5	20.1		Betelgeuse	271 37.6	N 7 24.2			
23	201 44.0	193 17.2	59.0	306 09.8	04.2		23 53.1	35.4		173 08.6	20.2							
29 00	216 46.5	208 19.5 N	6 58.4	321 12.3 S	23 04.3		38 55.8 N	2 35.5		188 10.8 N	9 20.3		Canopus	264 11.3	S 52 40.8			
01	231 48.9	223 21.9	57.9	336 14.8	04.4		53 58.4	35.6		203 13.0	20.4		Capella	281 24.1	N 45 58.3			
02	246 51.4	238 24.2	57.3	351 17.4	04.5		69 01.0	35.6		218 15.1	20.5		Deneb	49 54.3	N 45 09.8			
03	261 53.9	253 26.5	56.8	6 19.9	04.6		84 03.7	35.7		233 17.3	20.6		Denebola	183 07.3	N 14 44.6			
04	276 56.3	268 28.8	56.2	21 22.4	04.7		99 06.3	35.7		248 19.4	20.7		Diphda	349 29.5	S 18 09.3			
05	291 58.8	283 31.1	55.7	36 25.0	04.8		114 08.9	35.8		263 21.6	20.8							
06	307 01.2	298 33.4 N	6 55.1	51 27.5 S	23 04.9		129 11.6 N	2 35.9		278 23.8 N	9 21.0		Dubhe	194 31.6	N 61 55.2			
07	322 03.7	313 35.6	54.6	66 30.0	05.0		144 14.2	35.9		293 25.9	21.1		Elmath	278 55.0	N 28 35.1			
08	337 06.2	328 37.9	54.0	81 32.6	05.1		159 16.8	36.0		308 28.1	21.2		Eltanin	91 01.3	N 51 29.1			
09	352 08.6	343 40.2	53.5	96 35.1	05.2		174 19.5	36.1		323 30.3	21.3		Enif	34 19.9	N 9 43.8			
10	7 11.1	358 42.5	53.0	111 37.6	05.4		189 22.1	36.1		338 32.4	21.4		Fomalhaut	16 00.7	S 29 47.1			
11	22 13.6	13 44.8	52.4	126 40.2	05.5		204 24.7	36.2		353 34.6	21.5							
12	37 16.0	28 47.0 N	6 51.9	141 42.7 S	23 05.6		219 27.3 N	2 36.2		8 36.8 N	9 21.6		Gacrux	172 38.0	S 56 56.7			
13	52 18.5	43 49.3	51.4	156 45.3	05.7		234 30.0	36.3		23 38.9	21.7		Gienah	176 26.4	S 17 22.5			
14	67 21.0	58 51.6	50.8	171 47.8	05.8		249 32.6	36.4		38 41.1	21.8		Hadar	149 35.0	S 60 13.7			
15	82 23.4	73 53.8	50.3	186 50.4	05.9		264 35.2	36.4		53 43.3	21.9		Hamal	328 38.8	N 23 19.0			
16	97 25.9	88 56.1	49.8	201 52.9	06.0		279 37.9	36.5		68 45.4	22.1		Kaus Aust.	84 27.7	S 34 24.1			
17	112 28.4	103 58.3	49.3	216 55.5	06.1		294 40.5	36.6		83 47.6	22.2							
18	127 30.8	119 00.6 N	6 48.7	231 58.0 S	23 06.2		309 43.1 N	2 36.6		98 49.7 N	9 22.3		Kochab	137 16.8	N 74 16.7			
19	142 33.3	134 02.8	48.2	247 00.6	06.3		324 45.7	36.7		113 51.9	22.4		Markab	14 11.8	N 15 02.2			
20	157 35.7	149 05.0	47.7	262 03.1	06.4		339 48.4	36.7		128 54.1	22.5		Menkar	314 50.2	N 3 58.2			
21	172 38.2	164 07.3	47.2	277 05.7	06.5		354 51.0	36.8		143 56.2	22.6		Menkent	148 46.7	S 36 13.4			
22	187 40.7	179 09.5	46.7	292 08.2	06.6		9 53.6	36.9		158 58.4	22.7		Miaplacidus	221 47.1	S 69 35.6			
23	202 43.1	194 11.7	46.2	307 10.8	06.7		24 56.2	36.9		174 00.6	22.8							
30 00	217 45.6	209 14.0 N	6 45.7	322 13.3 S	23 06.8		39 58.9 N	2 37.0		189 02.7 N	9 22.9		Mirfak	309 28.8	N 49 45.3			
01	232 48.1	224 16.2	45.1	337 15.9	06.9		55 01.5	37.1		204 04.9	23.0		Nunki	76 39.4	S 26 20.3			
02	247 50.5	239 18.4	44.6	352 18.5	07.0		70 04.1	37.1		219 07.1	23.1		Peacock	54 11.4	S 56 50.0			
03	262 53.0	254 20.6	44.1	7 21.0	07.1		85 06.7	37.2		234 09.2	23.3		Pollux	244 08.5	N 28 06.3			
04	277 55.5	269 22.8	43.6	22 23.6	07.2		100 09.4	37.2		249 11.4	23.4		Procyon	245 34.6	N 5 18.3			
05	292 57.9	284 25.0	43.1	37 26.2	07.3		115 12.0	37.3		264 13.6	23.5							
06	308 00.4	299 27.2 N	6 42.6	52 28.7 S	23 07.4		130 14.6 N	2 37.4		279 15.7 N	9 23.6		Rasalhague	96 37.1	N 12 34.6			
07	323 02.9	314 29.4	42.1	67 31.3	07.5		145 17.2	37.4		294 17.9	23.7		Regulus	208 18.8	N 12 07.1			
08	338 05.3	329 31.6	41.6	82 33.9	07.6		160 19.9	37.5		309 20.1	23.8		Rigel	281 44.3	S 8 14.1			
09	353 07.8	344 33.8	41.2	97 36.4	07.7		175 22.5	37.5		324 22.2	23.9		Rigel Kent.	140 36.9	S 60 42.6			
10	8 10.2	359 36.0	40.7	112 39.0	07.8		190 25.1	37.6		339 24.4	24.0		Sabik	102 50.5	S 15 41.5			
11	23 12.7	14 38.2	40.2	127 41.6	07.9		205 27.7	37.7		354 26.5	24.1							
12	38 15.2	29 40.4 N	6 39.7	142 44.2 S	23 08.0		220 30.3 N	2 37.7		9 28.7 N	9 24.2		Schedar	350 19.4	N 56 22.0			
13	53 17.6	44 42.6	39.2	157 46.7	08.1		235 33.0	37.8		24 30.9	24.3		Shaula	97 06.9	S 37 05.1			
14	68 20.1	59 44.7	38.7	172 49.3	08.2		250 35.6	37.8		39 33.0	24.5		Sirius	259 03.3	S 16 40.4			
15	83 22.6	74 46.9	38.2	187 51.9	08.3		265 38.2	37.9		54 35.2	24.6		Spica	159 06.1	S 11 00.3			
16	98 25.0	89 49.1	37.8	202 54.5	08.4		280 40.8	38.0		69 37.4	24.7		Suhail	223 17.1	S 43 18.7			
17	113 27.5	104 51.2	37.3	217 57.1	08.5		295 43.5	38.0		84 39.5	24.8							
18	128 30.0	119 53.4 N	6 36.8	232 59.6 S	23 08.6		310 46.1 N	2 38.1		99 41.7 N	9 24.9		Vega	81 01.3	N 38 44.8			
19	143 32.4	134 55.6	36.3	248 02.2	08.8		325 48.7	38.1		114 43.9	25.0		Zuben'ubi	137 42.1	S 15 55.1			
20	158 34.9	149 57.7	35.9	263 04.8	08.9		340 51.3	38.2		129 46.0	25.1							
21	173 37.3	164 59.9	35.4	278 07.4	09.0		355 53.9	38.2		144 48.2	25.2							
22	188 39.8	180 02.0																

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise					
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	28	29	30	I	
d	h	°	'	°	'	°	'	°	'	h	m	h	m	h	m	h	m
28	00	180	36.9	N 14	01.6	50	11.8	14.6	N	7 42.7	15.0	56.6	02 10	14 15	16 29	18 56	22 26
	01	195	37.0		02.4	64	45.4	14.6		7 27.7	15.1	56.6	02 44	14 21	16 25	18 38	21 22
	02	210	37.1		03.2	79	19.0	14.7		7 12.6	15.1	56.6	03 08	14 26	16 21	18 25	20 47
	03	225	37.2		04.0	93	52.7	14.5		6 57.5	15.1	56.7	03 26	14 30	16 18	18 13	20 23
	04	240	37.3		04.8	108	26.2	14.6		6 42.4	15.2	56.7	03 41	14 33	16 16	18 04	20 04
MONDAY	05	255	37.4		05.6	122	59.8	14.6		6 27.2	15.3	56.7	04 04	14 36	16 14	17 56	19 48
	06	270	37.5	N 14	06.4	137	33.4	14.6	N	6 11.9	15.3	56.8	04 13	14 38	16 12	17 50	19 35
	07	285	37.5		07.2	152	07.0	14.5		5 56.6	15.3	56.8	04 21	14 43	16 09	17 39	19 15
	08	300	37.6		08.0	166	40.5	14.6		5 41.3	15.4	56.8	04 28	14 44	16 07	17 34	19 06
	09	315	37.7		08.7	181	14.1	14.5		5 25.9	15.4	56.9	04 35	14 46	16 06	17 30	18 59
TUESDAY	10	330	37.8		09.5	195	47.6	14.5		5 10.5	15.5	56.9	04 41	14 47	16 05	17 26	18 52
	11	345	37.9		10.3	210	21.1	14.5		4 55.0	15.5	56.9	04 53	14 50	16 03	17 18	18 38
	12	0	38.0	N 14	11.1	224	54.6	14.5	N	4 39.5	15.6	57.0	05 03	14 53	16 01	17 11	18 26
	13	15	38.1		11.9	239	28.1	14.5		4 23.9	15.6	57.0	05 12	14 55	15 59	17 06	18 16
	14	30	38.2		12.7	254	01.6	14.5		4 08.3	15.6	57.0	05 19	14 57	15 58	17 01	18 07
WEDNESDAY	15	45	38.3		13.5	268	35.1	14.4		3 52.7	15.7	57.1	05 22	15 01	15 55	16 52	17 53
	16	60	38.4		14.2	283	08.5	14.4		3 37.0	15.7	57.1	05 24	15 04	15 53	16 44	17 40
	17	75	38.5		15.0	297	41.9	14.4		3 21.3	15.7	57.1	05 33	15 06	15 51	16 38	17 28
	18	90	38.6	N 14	15.8	312	15.3	14.3	N	3 05.6	15.8	57.2	05 43	15 09	15 49	16 31	17 16
	19	105	38.7		16.6	326	48.6	14.4		2 49.8	15.8	57.2	05 52	15 12	15 47	16 23	17 03
THURSDAY	20	120	38.8		17.4	341	22.0	14.3		2 34.0	15.8	57.3	06 03	15 16	15 44	16 15	16 49
	21	135	38.8		18.1	355	55.3	14.3		2 18.2	15.9	57.3	06 08	15 17	15 43	16 10	16 41
	22	150	38.9		18.9	10	28.6	14.2		2 02.3	15.9	57.3	06 15	15 20	15 42	16 05	16 32
	23	165	39.0		19.7	25	01.8	14.3		1 46.4	15.9	57.4	06 21	15 22	15 40	15 59	16 21
	29	00	180	39.1	N 14	20.5	39	35.1	14.2	N	1 30.5	15.9	57.4	06 29	15 25	15 38	15 52
FRIDAY	01	195	39.2		21.3	54	08.3	14.1		1 14.6	16.0	57.4	06 33	15 27	15 37	15 48	16 02
	02	210	39.3		22.0	68	41.4	14.1		0 58.6	16.0	57.5	06 37	15 28	15 36	15 45	15 56
	03	225	39.4		22.8	83	14.5	14.1		0 42.6	16.0	57.5	06 41	15 30	15 35	15 41	15 48
	04	240	39.5		23.6	97	47.6	14.1		0 26.6	16.1	57.5	06 45	15 32	15 34	15 36	15 40
	05	255	39.6		24.4	112	20.7	14.0	N	0 10.5	16.1	57.6	06 50	15 34	15 32	15 31	15 31
SATURDAY	06	270	39.7	N 14	25.2	126	53.7	14.0	S	0 05.6	16.1	57.6					
	07	285	39.7		25.9	141	26.7	13.9		0 21.7	16.1	57.6					
	08	300	39.8		26.7	155	59.6	13.9		0 37.8	16.1	57.7					
	09	315	39.9		27.5	170	32.5	13.9		0 53.9	16.1	57.7					
	10	330	40.0		28.3	185	05.4	13.8		1 10.0	16.2	57.8					
SUNDAY	11	345	40.1		29.0	199	38.2	13.7		1 26.2	16.2	57.8					
	12	0	40.2	N 14	29.8	214	10.9	13.8	S	1 42.4	16.2	57.8					
	13	15	40.3		30.6	228	43.7	13.6		1 58.6	16.2	57.9					
	14	30	40.4		31.4	243	16.3	13.6		2 14.8	16.2	57.9					
	15	45	40.5		32.1	257	48.9	13.6		2 31.0	16.2	57.9					
MONDAY	16	60	40.5		32.9	272	21.5	13.5		2 47.2	16.2	58.0					
	17	75	40.6		33.7	286	54.0	13.5		3 03.4	16.3	58.0					
	18	90	40.7	N 14	34.5	301	26.5	13.4	S	3 19.7	16.2	58.0					
	19	105	40.8		35.2	315	58.9	13.3		3 35.9	16.2	58.1					
	20	120	40.9		36.0	330	31.2	13.3		3 52.1	16.3	58.1					
TUESDAY	21	135	41.0		36.8	345	03.5	13.3		4 08.4	16.2	58.1					
	22	150	41.1		37.6	359	35.8	13.1		4 24.6	16.3	58.2					
	23	165	41.1		38.3	14	07.9	13.1		4 40.9	16.2	58.2					
	30	00	180	41.2	N 14	39.1	28	40.0	13.1	S	4 57.1	16.3	58.3				
	01	195	41.3		39.9	43	12.1	13.0		5 13.4	16.2	58.3					
WEDNESDAY	02	210	41.4		40.6	57	44.1	12.9		5 29.6	16.2	58.3					
	03	225	41.5		41.4	72	16.0	12.8		5 45.8	16.3	58.4					
	04	240	41.6		42.2	86	47.8	12.8		6 02.1	16.2	58.4					
	05	255	41.7		42.9	101	19.6	12.7		6 18.3	16.2	58.4					
	06	270	41.7	N 14	43.7	115	51.3	12.7	S	6 34.5	16.2	58.5					
THURSDAY	07	285	41.8		44.5	130	23.0	12.5		6 50.7	16.2	58.5					
	08	300	41.9		45.2	144	54.5	12.5		7 06.9	16.1	58.5					
	09	315	42.0		46.0	159	26.0	12.4		7 23.0	16.2	58.6					
	10	330	42.1		46.8	173	57.4	12.4		7 39.2	16.1	58.6					
	11	345	42.2		47.5	188	28.8	12.3		7 55.3	16.1	58.6					
FRIDAY	12	0	42.2	N 14	48.3	203	00.1	12.1	S	8 11.4	16.1	58.7					
	13	15	42.3		49.1	217	31.2	12.1		8 27.5	16.1	58.7					
	14	30	42.4		49.8	232	02.3	12.1		8 43.6	16.0	58.7					
	15	45	42.5		50.6	246	33.4	11.9		8 59.6	16.0	58.8					
	16	60	42.6		51.4	261	04.3	11.9		9 15.6	16.0	58.8					
SATURDAY	17	75	42.7		52.1	275	35.2	11.7		9 31.6	16.0	58.8					
	18	90	42.7	N 14	52.9	290	05.9	11.7	S	9 47.6	15.9	58.8					
	19	105	42.8		53.7	304	36.6	11.6		10 03.5	15.9	58.9					
	20	120	42.9		54.4	319	07.2	11.5		10 19.4	15.9	58.9					
	21	135	43.0		55.2	333	37.7	11.5		10 35.3	15.8	58.9					
SUNDAY	22	150	43.1		55.9	348	08.2	11.3		10 51.1	15.8	59.0					
	23	165	43.1		56.7	2	38.5	11.2		11 06.9	15.7	59.0					
		S.D. 15.9		<i>d</i>	0.8	S.D. 15.5		15.8		16.0							
LAT.																	
SUN																	
MOON																	
MER. PASS.																	
MER. UPPER																	
MER. LOWER																	
AGE																	

G.M.T.		ARIES		VENUS -4.1		MARS -1.1		JUPITER -1.9		SATURN +0.6		STARS		
d	h	G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.	
I	00	218 44.7	210 06.3	N 6 34.0	323 15.2	S 23 09.3	41 01.8	N 2 38.4	189 54.7	N 9 25.5	Acamar	315 43.9	S 40 25.6	
	01	233 47.2	225 08.4	33.5	338 17.8	09.4	56 04.4	38.5	204 56.9	25.6	Achernar	335 51.7	S 57 23.4	
	02	248 49.7	240 10.6	33.1	353 20.4	09.5	71 07.0	38.5	219 59.0	25.8	Acrux	173 46.5	S 62 56.0	
	03	263 52.1	255 12.7	32.6	8 23.0	09.6	86 09.6	38.6	235 01.2	25.9	Adhara	255 38.9	S 28 55.8	
	04	278 54.6	270 14.8	32.2	23 25.6	09.7	101 12.3	38.7	250 03.3	26.0	Aldebaran	291 28.0	N 16 27.0	
T H U R S D A Y	05	293 57.1	285 16.9	31.7	38 28.2	09.8	116 14.9	38.7	265 05.5	26.1				
	06	308 59.5	300 19.0	N 6 31.3	53 30.8	S 23 09.9	131 17.5	N 2 38.8	280 07.7	N 9 26.2	Alioth	166 49.0	N 56 07.6	
	07	324 02.0	315 21.2	30.8	68 33.4	10.0	146 20.1	38.8	295 09.8	26.3	Alkaid	153 24.4	N 49 27.9	
	08	339 04.4	330 23.3	30.4	83 36.0	10.1	161 22.7	38.9	310 12.0	26.4	Al Na'ir	28 25.4	S 47 06.6	
	09	354 06.9	345 25.4	29.9	98 38.6	10.2	176 25.4	38.9	325 14.2	26.5	Alnilam	276 20.4	S 1 13.2	
	10	9 09.4	0 27.5	29.5	113 41.2	10.3	191 28.0	39.0	340 16.3	26.6	Alphard	218 28.8	S 8 31.5	
	11	24 11.8	15 29.6	29.0	128 43.8	10.4	206 30.6	39.1	355 18.5	26.7				
	12	39 14.3	30 31.7	N 6 28.6	143 46.4	S 23 10.5	221 33.2	N 2 39.1	10 20.7	N 9 26.8	Alphecca	126 38.8	N 26 48.8	
	13	54 16.8	45 33.8	28.1	158 49.0	10.6	236 35.8	39.2	25 22.8	26.9	Alpheratz	358 18.4	N 28 55.1	
	14	69 19.2	60 35.9	27.7	173 51.6	10.7	251 38.4	39.2	40 25.0	27.1	Altair	62 40.6	N 8 46.9	
S A T U R D A Y	15	84 21.7	75 38.0	27.3	188 54.2	10.8	266 41.0	39.3	55 27.2	27.2	Ankaa	353 48.6	S 42 28.2	
	16	99 24.2	90 40.0	26.8	203 56.9	10.9	281 43.7	39.3	70 29.3	27.3	Antares	113 06.9	S 26 22.1	
	17	114 26.6	105 42.1	26.4	218 59.5	11.0	296 46.3	39.4	85 31.5	27.4				
	18	129 29.1	120 44.2	N 6 26.0	234 02.1	S 23 11.1	311 48.9	N 2 39.4	100 33.7	N 9 27.5	Arcturus	146 25.7	N 19 20.3	
	19	144 31.6	135 46.3	25.6	249 04.7	11.2	326 51.5	39.5	115 35.8	27.6	Atria	108 38.3	S 68 58.5	
	20	159 34.0	150 48.3	25.1	264 07.3	11.3	341 54.1	39.6	130 38.0	27.7	Avior	234 32.0	S 59 24.8	
	21	174 36.5	165 50.4	24.7	279 10.0	11.4	356 56.7	39.6	145 40.1	27.8	Bellatrix	279 08.0	N 6 19.5	
	22	189 38.9	180 52.5	24.3	294 12.6	11.5	11 59.3	39.7	160 42.3	27.9	Betelgeuse	271 37.6	N 7 24.2	
	23	204 41.4	195 54.5	23.9	309 15.2	11.6	27 02.0	39.7	175 44.5	28.0				
	2	00	219 43.9	210 56.6	N 6 23.5	324 17.8	S 23 11.7	42 04.6	N 2 39.8	190 46.6	N 9 28.1	Canopus	264 11.3	S 52 40.8
01		234 46.3	225 58.6	23.0	339 20.5	11.8	57 07.2	39.8	205 48.8	28.2	Capella	281 24.1	N 45 58.3	
02		249 48.8	241 00.7	22.6	354 23.1	11.9	72 09.8	39.9	220 51.0	28.4	Deneb	49 54.3	N 45 09.8	
03		264 51.3	256 02.7	22.2	9 25.7	12.0	87 12.4	39.9	235 53.1	28.5	Denebola	183 07.3	N 14 44.6	
04		279 53.7	271 04.8	21.8	24 28.4	12.1	102 15.0	40.0	250 55.3	28.6	Diphda	349 29.5	S 18 09.3	
F R I D A Y	05	294 56.2	286 06.8	21.4	39 31.0	12.2	117 17.6	40.1	265 57.5	28.7				
	06	309 58.7	301 08.8	N 6 21.0	54 33.6	S 23 12.3	132 20.2	N 2 40.1	280 59.6	N 9 28.8	Dubhe	194 31.7	N 61 55.2	
	07	325 01.1	316 10.9	20.6	69 36.3	12.4	147 22.9	40.2	296 01.8	28.9	Elmath	278 55.0	N 28 35.1	
	08	340 03.6	331 12.9	20.2	84 38.9	12.5	162 25.5	40.2	311 04.0	29.0	Eltanin	91 01.3	N 51 29.1	
	09	355 06.1	346 14.9	19.8	99 41.5	12.6	177 28.1	40.3	326 06.1	29.1	Enif	34 19.9	N 9 43.8	
	10	10 08.5	1 16.9	19.4	114 44.2	12.7	192 30.7	40.3	341 08.3	29.2	Fomalhaut	16 00.7	S 29 47.1	
	11	25 11.0	16 18.9	19.0	129 46.8	12.8	207 33.3	40.4	356 10.5	29.3				
	12	40 13.4	31 21.0	N 6 18.6	144 49.5	S 23 12.9	222 35.9	N 2 40.4	11 12.6	N 9 29.4	Gacrux	172 38.0	S 56 56.7	
	13	55 15.9	46 23.0	18.2	159 52.1	13.0	237 38.5	40.5	26 14.8	29.5	Gienah	176 26.4	S 17 22.5	
	14	70 18.4	61 25.0	17.8	174 54.8	13.1	252 41.1	40.5	41 17.0	29.7	Hadar	149 35.0	S 60 13.7	
S A T U R D A Y	15	85 20.8	76 27.0	17.4	189 57.4	13.2	267 43.7	40.6	56 19.1	29.8	Hamal	328 38.8	N 23 19.0	
	16	100 23.3	91 29.0	17.0	205 00.1	13.3	282 46.3	40.7	71 21.3	29.9	Kaus Aust.	84 27.7	S 34 24.1	
	17	115 25.8	106 31.0	16.7	220 02.7	13.4	297 49.0	40.7	86 23.5	30.0				
	18	130 28.2	121 33.0	N 6 16.3	235 05.4	S 23 13.5	312 51.6	N 2 40.8	101 25.6	N 9 30.1	Kochab	137 16.8	N 74 16.7	
	19	145 30.7	136 35.0	15.9	250 08.0	13.6	327 54.2	40.8	116 27.8	30.2	Markab	14 11.8	N 15 02.2	
	20	160 33.2	151 36.9	15.5	265 10.7	13.7	342 56.8	40.9	131 29.9	30.3	Menkar	314 50.2	N 3 58.2	
	21	175 35.6	166 38.9	15.1	280 13.3	13.8	357 59.4	40.9	146 32.1	30.4	Menkent	148 46.7	S 36 13.4	
	22	190 38.1	181 40.9	14.8	295 16.0	13.9	13 02.0	41.0	161 34.3	30.5	Miaplacidus	221 47.2	S 69 35.7	
	23	205 40.6	196 42.9	14.4	310 18.7	14.0	28 04.6	41.0	176 36.4	30.6				
	3	00	220 43.0	211 44.9	N 6 14.0	325 21.3	S 23 14.1	43 07.2	N 2 41.1	191 38.6	N 9 30.7	Mirfak	309 28.8	N 49 45.3
01		235 45.5	226 46.8	13.7	340 24.0	14.2	58 09.8	41.1	206 40.8	30.8	Nunki	76 39.4	S 26 20.3	
02		250 47.9	241 48.8	13.3	355 26.6	14.3	73 12.4	41.2	221 42.9	31.0	Peacock	54 11.3	S 56 50.0	
03		265 50.4	256 50.7	12.9	10 29.3	14.4	88 15.0	41.2	236 45.1	31.1	Pollux	244 08.5	N 28 06.3	
04		280 52.9	271 52.7	12.6	25 32.0	14.5	103 17.6	41.3	251 47.3	31.2	Procyon	245 34.7	N 5 18.4	
S A T U R D A Y	05	295 55.3	286 54.7	12.2	40 34.6	14.6	118 20.2	41.3	266 49.4	31.3				
	06	310 57.8	301 56.6	N 6 11.8	55 37.3	S 23 14.7	133 22.8	N 2 41.4	281 51.6	N 9 31.4	Rasalhague	96 37.1	N 12 34.6	
	07	326 00.3	316 58.6	11.5	70 40.0	14.8	148 25.4	41.4	296 53.8	31.5	Regulus	208 18.8	N 12 07.1	
	08	341 02.7	332 00.5	11.1	85 42.7	14.9	163 28.1	41.5	311 55.9	31.6	Rigel	281 44.3	S 8 14.1	
	09	356 05.2	347 02.5	10.8	100 45.3	15.0	178 30.7	41.5	326 58.1	31.7	Rigel Kent.	140 36.9	S 60 42.6	
	10	11 07.7	2 04.4	10.4	115 48.0	15.1	193 33.3	41.6	342 00.3	31.8	Sabik	102 50.5	S 15 41.5	
	11	26 10.1	17 06.3	10.1	130 50.7	15.2	208 35.9	41.6	357 02.4	31.9				
	12	41 12.6	32 08.3	N 6 09.7	145 53.4	S 23 15.3	232 38.5	N 2 41.7	12 04.6	N 9 32.0	Schedar	350 19.4	N 56 22.0	
	13	56 15.1	47 10.2	09.4	160 56.0	15.4	238 41.1	41.8	27 06.8	32.1	Shaula	97 06.9	S 37 05.1	
	14	71 17.5	62 12.1	09.0	175 58.7	15.5	253 43.7	41.8	42 08.9	32.2	Sirius	259 03.3	S 16 40.4	
S A T U R D A Y	15	86 20.0	77 14.0	08.7	191 01.4	15.6	268 46.3	41.9	57 11.1	32.4	Spica	159 06.1	S 11 00.3	
	16	101 22.4	92 16.0	08.4	206 04.1	15.7	283 48.9	41.9	72 13.3	32.5	Suhail	223 17.1	S 43 18.7	
	17	116 24.9	107 17.9	08.0	221 06.8	15.8	298 51.5	42.0	87 15.4	32.6				
	18	131 27.4	122 19.8	N 6 07.7	236 09.5	S 23 15.9	313 54.1	N 2 42.0	102 17.6	N 9 32.7	Vega	81 01.3	N 38 44.9	
	19	146 29.8	137 21.7	07.4	251 12.2	16.0	328 56.7	42.1	117 19.8	32.8	Zuben'ubi	137 42.1	S 15 55.1	
	20	161 32.3	152 23.6	07.0	266 14.8	16.1	343 59.3	42.1	132 21.9	32.9				
	21	176 34.8	167 25.5	06.7	281 17.5	16.2	359 01.9	42.2	147 24.1	33.0				
	22	191 37.2	182 27.4	06.4	296 20.2	16.3	14 04.5	42.2	162 26.3	33.1	Venus	351 12.7	9 55	
	23	206 39.7	197 29.3	06.0	311 22.9	16.4	29 07.1	42.3	177 28.4	33.2	Mars	104 33.9	2 22	
	Mer. Pass.		9 19.5	v 2.0	d 0.4	v 2.6	d 0.1	v 2.6	d 0.1	v 2.2	d 0.1	Jupiter	182 20.7	21 08
											Saturn	331 02.7	11 15	

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise																
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	1	2	3	4												
d	h	m	s	m	s	m	s	m	s	m	s	m	s	m	s	m	s	m	s									
T H U R S D A Y	00	180	43.2	N14	57.5	17	08.7	11.2	S11	22.6	15.7	59.0	N 72	01 46	22 26	■	■	■	■									
	01	195	43.3		58.2	31	38.9	11.0	11	38.3	15.7	59.1	N 70	02 26	21 22	■	■	■	■									
	02	210	43.4		59.0	46	08.9	10.9	11	54.0	15.6	59.1	66	01 51	03 14	20 23	23 08	■	■									
	03	225	43.5	14	59.7	60	38.8	10.9	12	09.6	15.6	59.1	64	02 22	03 31	20 04	22 22	■	■									
	04	240	43.5	15	00.5	75	08.7	10.7	12	25.2	15.5	59.2	62	00 51	02 44	03 45	19 48	21 52	24 14	00 14								
	05	255	43.6		01.3	89	38.4	10.7	12	40.7	15.4	59.2	60	01 38	03 02	03 56	19 35	21 30	23 31	25 21								
	06	270	43.7	N15	02.0	104	08.1	10.5	S12	56.1	15.4	59.2	N 58	02 07	03 17	04 06	19 24	21 12	23 02	24 39								
	07	285	43.8		02.8	118	37.6	10.5	13	11.5	15.4	59.2	56	02 28	03 30	04 15	19 15	20 56	22 39	24 11								
	08	300	43.8		03.5	133	07.1	10.3	13	26.9	15.3	59.3	54	02 45	03 41	04 22	19 06	20 43	22 21	23 49								
	09	315	43.9	..	04.3	147	36.4	10.3	13	42.2	15.2	59.3	52	02 59	03 50	04 29	18 59	20 32	22 06	23 31								
	10	330	44.0		05.0	162	05.7	10.1	13	57.4	15.2	59.3	50	03 11	03 58	04 35	18 52	20 22	21 53	23 15								
	11	345	44.1		05.8	176	34.8	10.0	14	12.6	15.1	59.4	45	03 36	04 16	04 48	18 38	20 01	21 25	22 44								
	12		0 44.2	N15	06.5	191	03.8	9.9	S14	27.7	15.1	59.4	N 40	03 54	04 30	04 59	18 26	19 44	21 04	22 20								
	13		15 44.2		07.3	205	32.7	9.9	14	42.8	15.0	59.4	35	04 09	04 41	05 09	18 16	19 30	20 46	22 00								
	14		30 44.3		08.1	220	01.6	9.7	14	57.8	14.9	59.4	30	04 21	04 51	05 17	18 07	19 18	20 31	21 43								
	15		45 44.4	..	08.8	234	30.3	9.5	15	12.7	14.8	59.5	20	04 40	05 07	05 30	17 53	18 57	20 05	21 15								
	16		60 44.5		09.6	248	58.8	9.5	15	27.5	14.8	59.5	N 10	04 55	05 21	05 42	17 40	18 39	19 43	20 50								
	17		75 44.5		10.3	263	27.3	9.4	15	42.3	14.7	59.5	0	05 07	05 32	05 54	17 28	18 23	19 23	20 27								
	18		90 44.6	N15	11.1	277	55.7	9.2	S15	57.0	14.6	59.5	S 10	05 18	05 43	06 05	17 16	18 06	19 03	20 05								
	19		105 44.7		11.8	292	23.9	9.2	16	11.6	14.6	59.6	20	05 27	05 53	06 16	17 03	17 49	18 41	19 41								
	20		120 44.8		12.6	306	52.1	9.0	16	26.2	14.4	59.6	30	05 36	06 05	06 29	16 49	17 29	18 16	19 13								
	21		135 44.8	..	13.3	321	20.1	8.9	16	40.6	14.4	59.6	35	05 41	06 11	06 37	16 41	17 17	18 02	18 56								
	22		150 44.9		14.1	335	48.0	8.8	16	55.0	14.3	59.6	40	05 45	06 17	06 46	16 32	17 04	17 45	18 37								
	23		165 45.0		14.8	350	15.8	8.7	17	09.3	14.2	59.7	45	05 50	06 25	06 56	16 21	16 49	17 25	18 13								
2	00	180	45.1	N15	15.6	4	43.5	8.5	S17	23.5	14.1	59.7	S 50	05 55	06 33	07 08	16 08	16 30	17 00	17 44								
	01	195	45.1		16.3	19	11.0	8.5	17	37.6	14.0	59.7	52	05 57	06 37	07 13	16 02	16 21	16 48	17 29								
	02	210	45.2		17.1	33	38.5	8.3	17	51.6	13.9	59.7	54	05 59	06 41	07 19	15 56	16 11	16 34	17 12								
	03	225	45.3	..	17.8	48	05.8	8.2	18	05.5	13.9	59.8	56	06 02	06 46	07 26	15 48	16 00	16 19	16 52								
	04	240	45.4		18.6	62	33.0	8.1	18	19.4	13.7	59.8	58	06 04	06 51	07 34	15 40	15 47	16 00	16 27								
	05	255	45.4		19.3	77	00.1	7.9	18	33.1	13.6	59.8	S 60	06 07	06 57	07 43	15 31	15 32	15 37	15 53								
	06	270	45.5	N15	20.1	91	27.0	7.9	S18	46.7	13.6	59.8	Lat.		Sun-set		Twilight		Moonset									
	07	285	45.6		20.8	105	53.9	7.7	19	00.3	13.4	59.8					Civil		Naut.		1		2		3		4	
	08	300	45.6		21.6	120	20.6	7.6	19	13.7	13.3	59.9																
	09	315	45.7	..	22.3	134	47.2	7.5	19	27.0	13.2	59.9																
	10	330	45.8		23.1	149	13.7	7.3	19	40.2	13.1	59.9																
	11	345	45.9		23.8	163	40.0	7.2	19	53.3	13.0	59.9	N 72	22 16	01 46	02 11	00 28	■	■	■	■							
	12		0 45.9	N15	24.5	178	06.2	7.1	S20	06.3	12.9	59.9	N 70	21 32	01 46	02 11	01 34	■	■	■	■							
	13		15 46.0		25.3	192	32.3	7.0	20	19.2	12.7	60.0	68	21 04	23 08	02 47	02 11	■	■	■	■							
	14		30 46.1		26.0	206	58.3	6.9	20	31.9	12.6	60.0	66	20 42	22 09	03 00	02 37	01 48	■	■	■							
	15		45 46.2	..	26.8	221	24.2	6.7	20	44.5	12.5	60.0	64	20 25	21 36	03 11	02 57	02 36	■	■	■							
	16		60 46.2		27.5	235	49.9	6.6	20	57.0	12.4	60.0	62	20 11	21 12	03 20	03 14	03 06	02 53	■	■							
	17		75 46.3		28.3	250	15.5	6.5	21	09.4	12.3	60.0	60	20 00	20 54	03 28	03 28	03 30	03 37	■	■							
	18		90 46.4	N15	29.0	264	41.0	6.4	S21	21.7	12.1	60.1	N 58	19 50	20 39	03 36	03 40	03 49	04 06	■	■							
	19		105 46.4		29.7	279	06.4	6.2	21	33.8	12.0	60.1	56	19 41	20 26	03 42	03 51	04 05	04 29	■	■							
	20		120 46.5		30.5	293	31.6	6.1	21	45.8	11.9	60.1	54	19 33	20 15	03 48	04 00	04 18	04 47	■	■							
	21		135 46.6	..	31.2	307	56.7	6.0	21	57.7	11.7	60.1	52	19 26	20 05	03 53	04 08	04 30	05 03	■	■							
	22		150 46.6		32.0	322	21.7	5.9	22	09.4	11.6	60.1	50	19 20	19 57	04 04	04 16	04 41	05 17	■	■							
	23		165 46.7		32.7	336	46.6	5.8	22	21.0	11.4	60.1	45	19 06	19 39	04 08	04 32	05 03	05 45	■	■							
3	00	180	46.8	N15	33.4	351	11.4	5.6	S22	32.4	11.3	60.2	N 40	18 55	19 25	20 01	04 16	04 45	05 21	06 07								
	01	195	46.8		34.2	5	36.0	5.5	22	43.7	11.2	60.2	35	18 46	19 13	19 46	04 24	04 57	05 37	06 25								
	02	210	46.9		34.9	20	00.5	5.4	22	54.9	11.0	60.2	30	18 38	19 03	19 34	04 30	05 07	05 50	06 41								
	03	225	47.0	..	35.7	34	24.9	5.3	23	05.9	10.9	60.2	20	18 24	18 47	19 14	04 41	05 24	06 13	07 08								
	04	240	47.1		36.4	48	49.2	5.1	23	16.8	10.7	60.2	N 10	18 12	18 33	18 59	04 51	05 39	06 32	07 32								
	05	255	47.1		37.1	63	13.3	5.1	23	27.5	10.6	60.2	0	18 00	18 22	18 47	05 01	05 53	06 51	07 53								
	06	270	47.2	N15	37.9	77	37.4	4.9	S23	38.1	10.4	60.2	S 10	17 49	18 11	18 36	05 10	06 08	07 09	08 15								
	07	285	47.3		38.6	92	01.3	4.8	23	48.5	10.2	60.2	20	17 38	18 00	18 27	05 20	06 23	07 29	08 38								
	08	300	47.3		39.3	106	25.1	4.7	23	58.7	10.1	60.3	30	17 24	17 49	18 17	05 32	06 41	07 53	09 06								
	09	315	47.4	..	40.1	120	48.8	4.5	24	08.8	9.9	60.3	35	17 17	17 43	18 13	05 39	06 51	08 06	09 22								
	10	330	47.5		40.8	135	12.3	4.5	24	18.7	9.8	60.3	40	17 08	17 36	18 08	05 46	07 03	08 22	09 41								
	11	345	47.5		41.5	149	35.8	4.4	24	28.5	9.6	60.3	45	16 58	17 29	18 03	05 55	07 17	08 41	10 03								
	12		0 47.6	N15	42.3	163	59.2	4.2	S24	38.1	9.5	60.3	S 50	16 46	17 20	17 58	06 06	07 34	09 05	10 32								
	13		15 47.7		43.0	178	22.4	4.1	24	47.6	9.2	60.3	52	16 40	17 16	17 56	06 11	07 42	09 16	10 47								
	14		30 47.7		43.7	192	45.5	4.0	24	56.8	9.1	60.3	54	16 34	17 12	17 54	06 17	07 52	09 29	11 03								
	15		45 47.8	..	44.5	207	08.5	4.0	25	05.9	9.0	60.3	56	16 27	17 07	17 51	06 23	08 02	09 45	11 23								
	16		60 47.8		45.2	221	31.5	3.8	25	14.9	8.7	60.3	58	16 19	17 02	17 49	06 30	08 14	10 03	11 48								
	17		75 47.9		45.9	235	54.3	3.7	25	23.6	8.6	60.3	S 60	16 10	16 56	17 46	06 38	08 28	10 25	12 22								
	18		90 48.0	N15	46.7	250	17.0	3.6	S25	32.2	8.4	60.3	Day		SUN		MOON											
	19		105 48.0		47.4	264	39.6	3.5	25	40.6	8.2	60.4			Eqn. of Time		Mer. Pass.		Mer. Upper		Pass. Lower		Age		Phase			
	20		120 48.1		48.1	279	02.1	3.4	25	48.8	8.0	60.4			00h		Pass.											
	21		135 48.2	..	48.9	293	24.5	3.3	25	56.8	7.9																	

	ARIES	VENUS -4.2		MARS -1.2		JUPITER -1.9		SATURN +0.6		STARS				
G.M.T.	G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.		
d h	o	o	o	o	o	o	o	o	o		o	o		
SUNDAY	4 00	221 42.2	212 31.2 N	6 05.7	326 25.6 S	23 16.5	44 09.7 N	2 42.3	192 30.6 N	9 33.3	Acamar	315 43.9 S	40 25.6	
	01	236 44.6	227 33.1	05.4	341 28.3	16.6	59 12.3	42.4	207 32.8	33.4	Achernar	335 51.7 S	57 23.4	
	02	251 47.1	242 35.0	05.1	356 31.0	16.7	74 14.9	42.4	222 34.9	33.5	Acrux	173 46.5 S	62 56.0	
	03	266 49.6	257 36.8	04.8	11 33.7	16.8	89 17.5	42.5	237 37.1	33.6	Adhara	255 38.9 S	28 55.8	
	04	281 52.0	272 38.7	04.4	26 36.4	16.9	104 20.1	42.5	252 39.3	33.8	Aldebaran	291 28.0 N	16 27.0	
	05	296 54.5	287 40.6	04.1	41 39.1	17.0	119 22.7	42.5	267 41.4	33.9				
	06	311 56.9	302 42.5 N	6 03.8	56 41.8 S	23 17.0	134 25.3 N	2 42.6	282 43.6 N	9 34.0	Alioth	166 49.0 N	56 07.6	
	07	326 59.4	317 44.3	03.5	71 44.5	17.1	149 27.9	42.6	297 45.8	34.1	Alkaid	153 24.4 N	49 27.9	
	08	342 01.9	332 46.2	03.2	86 47.2	17.2	164 30.5	42.7	312 47.9	34.2	Al Na'ir	28 25.4 S	47 06.5	
	09	357 04.3	347 48.1	02.9	101 49.9	17.3	179 33.1	42.7	327 50.1	34.3	Alnilam	276 20.4 S	1 13.2	
	10	12 06.8	2 49.9	02.6	116 52.7	17.4	194 35.7	42.8	342 52.3	34.4	Alphard	218 28.8 S	8 31.5	
	11	27 09.3	17 51.8	02.3	131 55.4	17.5	209 38.3	42.8	357 54.4	34.5				
	12	42 11.7	32 53.6 N	6 02.0	146 58.1 S	23 17.6	224 40.9 N	2 42.9	12 56.6 N	9 34.6	Alphecca	126 38.8 N	26 48.8	
	13	57 14.2	47 55.5	01.7	162 00.8	17.7	239 43.5	42.9	27 58.8	34.7	Alpheratz	358 18.4 N	28 55.1	
	14	72 16.7	62 57.3	01.4	177 03.5	17.8	254 46.1	43.0	43 00.9	34.8	Altair	62 40.6 N	8 46.9	
	15	87 19.1	77 59.2	01.1	192 06.2	17.9	269 48.6	43.0	58 03.1	34.9	Ankaa	353 48.6 S	42 28.2	
	16	102 21.6	93 01.0	00.8	207 09.0	18.0	284 51.2	43.1	73 05.3	35.0	Antares	113 06.9 S	26 22.1	
	17	117 24.0	108 02.9	00.5	222 11.7	18.1	299 53.8	43.1	88 07.4	35.1				
	18	132 26.5	123 04.7 N	6 00.2	237 14.4 S	23 18.2	314 56.4 N	2 43.2	103 09.6 N	9 35.2	Arcturus	146 25.7 N	19 20.3	
	19	147 29.0	138 06.5	5 59.9	252 17.1	18.3	329 59.0	43.2	118 11.8	35.4	Atria	108 38.3 S	68 58.5	
	20	162 31.4	153 08.3	59.6	267 19.8	18.4	345 01.6	43.3	133 13.9	35.5	Avior	234 32.0 S	59 24.8	
	21	177 33.9	168 10.2	59.3	282 22.6	18.5	0 04.2	43.3	148 16.1	35.6	Bellatrix	279 08.0 N	6 19.5	
	22	192 36.4	183 12.0	59.1	297 25.3	18.6	15 06.8	43.4	163 18.3	35.7	Beteigeuse	271 37.6 N	7 24.2	
	23	207 38.8	198 13.8	58.8	312 28.0	18.7	30 09.4	43.4	178 20.4	35.8				
MONDAY	5 00	222 41.3	213 15.6 N	5 58.5	327 30.8 S	23 18.8	45 12.0 N	2 43.5	193 22.6 N	9 35.9	Canopus	264 11.3 S	52 40.8	
	01	237 43.8	228 17.4	58.2	342 33.5	18.9	60 14.6	43.5	208 24.8	36.0	Capella	281 24.1 N	45 58.3	
	02	252 46.2	243 19.2	58.0	357 36.2	19.0	75 17.2	43.5	223 26.9	36.1	Deneb	49 54.3 N	45 09.8	
	03	267 48.7	258 21.1	57.7	12 39.0	19.1	90 19.8	43.6	238 29.1	36.2	Denebola	183 07.3 N	14 44.6	
	04	282 51.2	273 22.9	57.4	27 41.7	19.2	105 22.4	43.6	253 31.3	36.3	Diphda	349 29.4 S	18 09.3	
	05	297 53.6	288 24.7	57.1	42 44.4	19.3	120 25.0	43.7	268 33.4	36.4				
	06	312 56.1	303 26.5 N	5 56.9	57 47.2 S	23 19.4	135 27.6 N	2 43.7	283 35.6 N	9 36.5	Dubhe	194 31.7 N	61 55.2	
	07	327 58.5	318 28.2	56.6	72 49.9	19.5	150 30.2	43.8	298 37.8	36.6	El Nath	278 55.0 N	28 35.1	
	08	343 01.0	333 30.0	56.3	87 52.7	19.6	165 32.7	43.8	313 39.9	36.7	Eltanin	91 01.2 N	51 29.1	
	09	358 03.5	348 31.8	56.1	102 55.4	19.7	180 35.3	43.9	328 42.1	36.8	Enif	34 19.9 N	9 43.8	
	10	13 05.9	3 33.6	55.8	117 58.1	19.8	195 37.9	43.9	343 44.3	37.0	Fomalhaut	16 00.7 S	29 47.1	
	11	28 08.4	18 35.4	55.6	133 00.9	19.9	210 40.5	44.0	358 46.4	37.1				
	12	43 10.9	33 37.2 N	5 55.3	148 03.6 S	23 19.9	225 43.1 N	2 44.0	13 48.6 N	9 37.2	Gacrux	172 38.0 S	56 56.7	
	13	58 13.3	48 38.9	55.0	163 06.4	20.0	240 45.7	44.0	28 50.8	37.3	Gienah	176 26.4 S	17 22.5	
	14	73 15.8	63 40.7	54.8	178 09.1	20.1	255 48.3	44.1	43 52.9	37.4	Hadar	149 35.0 S	60 13.8	
	15	88 18.3	78 42.5	54.5	193 11.9	20.2	270 50.9	44.1	58 55.1	37.5	Hamal	328 38.8 N	23 19.0	
	16	103 20.7	93 44.2	54.3	208 14.6	20.3	285 53.5	44.2	73 57.3	37.6	Kaus Aust.	84 27.7 S	34 24.1	
	17	118 23.2	108 46.0	54.0	223 17.4	20.4	300 56.1	44.2	88 59.4	37.7				
	18	133 25.7	123 47.8 N	5 53.8	238 20.2 S	23 20.5	315 58.6 N	2 44.3	104 01.6 N	9 37.8	Kochab	137 16.8 N	74 16.7	
	19	148 28.1	138 49.5	53.6	253 22.9	20.6	331 01.2	44.3	119 03.8	37.9	Markab	14 11.7 N	15 02.2	
	20	163 30.6	153 51.3	53.3	268 25.7	20.7	346 03.8	44.4	134 05.9	38.0	Menkar	314 50.2 N	3 58.2	
	21	178 33.0	168 53.0	53.1	283 28.4	20.8	1 06.4	44.4	149 08.1	38.1	Menkent	148 46.6 S	36 13.4	
	22	193 35.5	183 54.8	52.8	298 31.2	20.9	16 09.0	44.5	164 10.3	38.2	Miaplacidus	221 47.2 S	69 35.7	
	23	208 38.0	198 56.5	52.6	313 34.0	21.0	31 11.6	44.5	179 12.4	38.3				
TUESDAY	6 00	223 40.4	213 58.2 N	5 52.4	328 36.7 S	23 21.1	46 14.2 N	2 44.5	194 14.6 N	9 38.5	Mirfak	309 28.8 N	49 45.3	
	01	238 42.9	229 00.0	52.1	343 39.5	21.2	61 16.8	44.6	209 16.8	38.6	Nunki	76 39.3 S	26 20.3	
	02	253 45.4	244 01.7	51.9	358 42.3	21.3	76 19.3	44.6	224 18.9	38.7	Peacock	54 11.3 S	56 50.0	
	03	268 47.8	259 03.4	51.7	13 45.0	21.4	91 21.9	44.7	239 21.1	38.8	Pollux	244 08.5 N	28 06.3	
	04	283 50.3	274 05.2	51.5	28 47.8	21.5	106 24.5	44.7	254 23.3	38.9	Procyon	245 34.7 N	5 18.4	
	05	298 52.8	289 06.9	51.2	43 50.6	21.6	121 27.1	44.8	269 25.4	39.0				
	06	313 55.2	304 08.6 N	5 51.0	58 53.4 S	23 21.7	136 29.7 N	2 44.8	284 27.6 N	9 39.1	Rasalhague	96 37.1 N	12 34.6	
	07	328 57.7	319 10.3	50.8	73 56.1	21.8	151 32.3	44.8	299 29.8	39.2	Regulus	208 18.8 N	12 07.1	
	08	344 00.2	334 12.0	50.6	88 58.9	21.9	166 34.9	44.9	314 31.9	39.3	Rigel	281 44.3 S	8 14.1	
	09	359 02.6	349 13.8	50.3	104 01.7	22.0	181 37.4	44.9	329 34.1	39.4	Rigel Kent.	140 36.9 S	60 42.7	
	10	14 05.1	4 15.5	50.1	119 04.5	22.0	196 40.0	45.0	344 36.3	39.5	Sabik	102 50.5 S	15 41.5	
	11	29 07.5	19 17.2	49.9	134 07.2	22.1	211 42.6	45.0	359 38.4	39.6				
	12	44 10.0	34 18.9 N	5 49.7	149 10.0 S	23 22.2	226 45.2 N	2 45.1	14 40.6 N	9 39.7	Schedar	350 19.4 N	56 22.0	
	13	59 12.5	49 20.6	49.5	164 12.8	22.3	241 47.8	45.1	29 42.8	39.8	Shaula	97 06.8 S	37 05.1	
	14	74 14.9	64 22.3	49.3	179 15.6	22.4	256 50.4	45.1	44 44.9	39.9	Sirius	259 03.3 S	16 40.4	
	15	89 17.4	79 24.0	49.1	194 18.4	22.5	271 52.9	45.2	59 47.1	40.0	Spica	159 06.1 S	11 00.3	
	16	104 19.9	94 25.7	48.9	209 21.2	22.6	286 55.5	45.2	74 49.3	40.2	Suhail	223 17.1 S	43 18.7	
	17	119 22.3	109 27.3	48.7	224 24.0	22.7	301 58.1	45.3	89 51.4	40.3				
	18	134 24.8	124 29.0 N	5 48.5	239 26.8 S	23 22.8	317 00.7 N	2 45.3	104 53.6 N	9 40.4	Vega	81 01.3 N	38 44.9	
	19	149 27.3	139 30.7	48.3	254 29.5	22.9	332 03.3	45.4	119 55.8	40.5	Zuben'ubi	137 42.0 S	15 55.1	
	20	164 29.7	154 32.4	48.1	269 32.3	23.0	347 05.9	45.4	134 57.9	40.6				
	21	179 32.2	169 34.1	47.9	284 35.1	23.1	2 08.4	45.4	150 00.1	40.7		S.H.A.	Mer. Pass.	
	22	194 34.7	184 35.7	47.7	299 37.9	23.2	17 11.0	45.5	165 02.3	40.8	Venus	350 34.3 o	9 46 h m	
	23	209 37.1	199 37.4	47.5	314 40.7	23.3	32 13.6	45.5	180 04.4	40.9	Mars	104 49.5 o	2 10 h m	
										Jupiter	182 30.7 o	20 56 h m		
										Saturn	330 41.3 o	11 05 h m		
Mer. Pass.		h m												
		9 07.7	v	1.8	d	0.3	v	2.7	d	0.1	v	2.2	d	0.1

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise							
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.		Naut.	Civil		4	5	6	7				
d	h	°	'	°	'	°	'	°	'	°	'	h	m	h	m	h	m	h	m	
SUNDAY	4 00	180 48.4	N15 51.1	336 31.2	3.0	S 26 19.8	7.3	60.4	N 72	///	///	01 16	h	m	h	m	h	m	h	m
	01	195 48.4	51.8	350 53.2	3.0	26 27.1	7.1	60.4	N 70	///	///	02 08	■	■	■	■	■	■	■	
	02	210 48.5	52.5	5 15.2	2.8	26 34.2	7.0	60.4	68	///	///	02 40	■	■	■	■	■	■	■	
	03	225 48.5	53.2	19 37.0	2.8	26 41.2	6.7	60.4	66	///	01 30	03 03	■	■	■	■	■	■	■	
	04	240 48.6	54.0	33 58.8	2.7	26 47.9	6.5	60.4	64	///	02 07	03 21	■	■	■	■	■	04 31		
	05	255 48.7	54.7	48 20.5	2.6	26 54.4	6.3	60.4	62	///	02 33	03 36	00 14	■	■	■	■	03 16		
	06	270 48.7	N15 55.4	62 42.1	2.6	S 27 00.7	6.2	60.4	60	01 20	02 53	03 48	25 21	01 21	02 22	02 39	02 39			
	07	285 48.8	56.1	77 03.7	2.5	27 06.9	5.9	60.4	N 58	01 54	03 09	03 59	24 39	00 39	01 43	02 13				
	08	300 48.9	56.9	91 25.2	2.4	27 12.8	5.7	60.4	56	02 18	03 22	04 08	24 11	00 11	01 16	01 52				
	09	315 48.9	57.6	105 46.6	2.3	27 18.5	5.6	60.4	54	02 36	03 34	04 16	23 49	24 54	00 54	01 35				
	10	330 49.0	58.3	120 07.9	2.3	27 24.1	5.3	60.4	52	02 52	03 44	04 23	23 31	24 36	00 36	01 20				
	11	345 49.0	59.0	134 29.2	2.2	27 29.4	5.1	60.4	50	03 05	03 53	04 30	23 15	24 21	00 21	01 07				
	12	0 49.1	N15 59.8	148 50.4	2.1	S 27 34.5	5.0	60.4	45	03 30	04 11	04 44	22 44	23 50	24 41	00 41				
	13	15 49.2	16 00.5	163 11.5	2.1	27 39.5	4.7	60.4	N 40	03 50	04 26	04 56	22 20	23 26	24 19	00 19				
	14	30 49.2	01.2	177 32.6	2.1	27 44.2	4.5	60.4	35	04 05	04 38	05 06	22 00	23 06	24 02	00 02				
	15	45 49.3	01.9	191 53.7	2.0	27 48.7	4.3	60.4	30	04 18	04 49	05 14	21 43	22 49	23 46	24 34				
	16	60 49.3	02.6	206 14.7	1.9	27 53.0	4.1	60.4	20	04 38	05 06	05 29	21 15	22 21	23 20	24 12				
	17	75 49.4	03.4	220 35.6	1.9	27 57.1	3.9	60.4	N 10	04 54	05 20	05 42	20 50	21 56	22 58	23 54				
	18	90 49.4	N16 04.1	234 56.5	1.8	S 28 01.0	3.7	60.4	0	05 07	05 32	05 53	20 27	21 33	22 37	23 36				
	19	105 49.5	04.8	249 17.3	1.9	28 04.7	3.4	60.4	S 10	05 18	05 43	06 05	20 05	21 10	22 16	23 18				
	20	120 49.6	05.5	263 38.2	1.7	28 08.1	3.3	60.4	20	05 28	05 54	06 17	19 41	20 46	21 53	22 59				
	21	135 49.6	06.2	277 58.9	1.8	28 11.4	3.0	60.4	30	05 38	06 06	06 31	19 13	20 17	21 27	22 37				
	22	150 49.7	07.0	292 19.7	1.7	28 14.4	2.9	60.4	35	05 43	06 13	06 39	18 56	20 00	21 11	22 24				
	23	165 49.7	07.7	306 40.4	1.7	28 17.3	2.6	60.4	40	05 48	06 20	06 49	18 37	19 40	20 53	22 10				
									45	05 53	06 28	06 59	18 13	19 16	20 31	21 52				
MONDAY	00	180 49.8	N16 08.4	321 01.1	1.7	S 28 19.9	2.4	60.4	S 50	05 59	06 37	07 12	17 44	18 45	20 03	21 29				
	01	195 49.9	09.1	335 21.8	1.6	28 22.3	2.2	60.4	52	06 01	06 42	07 18	17 29	18 30	19 50	21 19				
	02	210 49.9	09.8	349 42.4	1.6	28 24.5	2.0	60.4	54	06 04	06 46	07 25	17 12	18 12	19 34	21 07				
	03	225 50.0	10.6	4 03.0	1.6	28 26.5	1.8	60.4	56	06 07	06 51	07 32	16 52	17 50	19 15	20 53				
	04	240 50.0	11.3	18 23.6	1.7	28 28.3	1.5	60.3	58	06 10	06 57	07 40	16 27	17 23	18 52	20 36				
	05	255 50.1	12.0	32 44.3	1.6	28 29.8	1.4	60.3	S 60	06 13	07 03	07 50	15 53	16 43	18 22	20 16				
	06	270 50.1	N16 12.7	47 04.9	1.6	S 28 31.2	1.1	60.3												
	07	285 50.2	13.4	61 25.5	1.6	28 32.3	0.9	60.3												
	08	300 50.2	14.1	75 46.1	1.6	28 33.2	0.7	60.3												
	09	315 50.3	14.8	90 06.7	1.6	28 33.9	0.5	60.3												
	10	330 50.4	15.6	104 27.3	1.6	28 34.4	0.3	60.3												
	11	345 50.4	16.3	118 47.9	1.6	28 34.7	0.0	60.3												
	12	0 50.5	N16 17.0	133 08.5	1.7	S 28 34.7	0.2	60.3												
	13	15 50.5	17.7	147 29.2	1.6	28 34.5	0.3	60.3	N 72	22 47	///	///	■	■	■	■				
	14	30 50.6	18.4	161 49.8	1.7	28 34.2	0.6	60.3	N 70	21 50	///	///	■	■	■	■				
	15	45 50.6	19.1	176 10.5	1.8	28 33.6	0.8	60.3	68	21 17	///	///	■	■	■	■				
	16	60 50.7	19.8	190 31.3	1.7	28 32.8	1.0	60.2	66	20 53	22 30	///	■	■	■	■				
	17	75 50.7	20.5	204 52.0	1.8	28 31.8	1.2	60.2	64	20 35	21 50	///	■	■	■	05 23				
	18	90 50.8	N16 21.2	219 12.8	1.8	S 28 30.6	1.5	60.2	62	20 20	21 24	///	02 53	■	■	06 38				
	19	105 50.8	21.9	233 33.6	1.9	28 29.1	1.6	60.2	60	20 07	21 03	22 39	03 37	04 02	05 20	07 14				
	20	120 50.9	22.7	247 54.5	1.9	28 27.5	1.9	60.2	N 58	19 56	20 47	22 03	04 06	04 44	05 58	07 39				
	21	135 50.9	23.4	262 15.4	1.9	28 25.6	2.0	60.2	56	19 47	20 33	21 38	04 29	05 13	06 26	07 59				
	22	150 51.0	24.1	276 36.3	2.0	28 23.6	2.3	60.2	54	19 39	20 21	21 19	04 47	05 35	06 47	08 16				
	23	165 51.0	24.8	290 57.3	2.1	28 21.3	2.5	60.2	52	19 31	20 11	21 04	05 03	05 53	07 05	08 31				
	TUESDAY	00	180 51.1	N16 25.5	305 18.4	2.1	S 28 18.8	2.7	60.1	50	19 24	20 02	20 50	05 17	06 09	07 20	08 43			
01		195 51.1	26.2	319 39.5	2.2	28 16.1	2.9	60.1	45	19 10	19 43	20 24	05 45	06 40	07 50	09 09				
02		210 51.2	26.9	334 00.7	2.2	28 13.2	3.1	60.1	N 40	18 58	19 28	20 05	06 07	07 05	08 14	09 29				
03		225 51.2	27.6	348 21.9	2.3	28 10.1	3.3	60.1	35	18 48	19 16	19 49	06 25	07 25	08 33	09 46				
04		240 51.3	28.3	2 43.2	2.3	28 06.8	3.5	60.1	30	18 40	19 05	19 36	06 41	07 42	08 50	10 01				
05		255 51.3	29.0	17 04.5	2.4	28 03.3	3.7	60.1	20	18 25	18 48	19 16	07 08	08 11	09 18	10 25				
06		270 51.4	N16 29.7	31 25.9	2.5	S 27 59.6	3.9	60.1	N 10	18 12	18 34	19 00	07 32	08 36	09 42	10 46				
07		285 51.4	30.4	45 47.4	2.6	27 55.7	4.1	60.0	0	18 00	18 22	18 47	07 53	08 59	10 04	11 06				
08		300 51.5	31.1	60 09.0	2.7	27 51.6	4.3	60.0	S 10	17 48	18 10	18 35	08 15	09 22	10 26	11 25				
09		315 51.5	31.8	74 30.7	2.7	27 47.3	4.5	60.0	20	17 36	17 59	18 25	08 38	09 47	10 50	11 46				
10		330 51.6	32.5	88 52.4	2.8	27 42.8	4.7	60.0	30	17 22	17 47	18 15	09 06	10 15	11 17	12 10				
11		345 51.6	33.2	103 14.2	2.9	27 38.1	4.9	60.0	35	17 14	17 40	18 10	09 22	10 32	11 33	12 23				
12		0 51.7	N16 33.9	117 36.1	3.0	S 27 33.2	5.1	60.0	40	17 04	17 33	18 05	09 41	10 52	11 52	12 39				
13		15 51.7	34.6	131 58.1	3.0	27 28.1	5.3	59.9	45	16 54	17 25	18 00	10 03	11 16	12 15	12 58				
14		30 51.8	35.3	146 20.1	3.2	27 22.8	5.5	59.9	S 50	16 41	17 15	17 54	10 32	11 47	12 43	13 22				
15		45 51.8	36.0	160 42.3	3.3	27 17.3	5.6	59.9	52	16 35	17 11	17 51	10 47	12 03	12 57	13 33				
16		60 51.9	36.7	175 04.6	3.3	27 11.7	5.9	59.9	54	16 28	17 06	17 49	11 03	12 21	13 13	13 46				
17		75 51.9	37.4	189 26.9	3.4	27 05.8	6.0	59.9	56	16 21	17 01	17 46	11 23	12 42	13 33	14 00				
18		90 52.0	N16 38.1	203 49.3	3.6	S 26 59.8	6.2	59.9	58	16 12	16 56	17 43	11 48	13 10	13 56	14 18				
19		105 52.0	38.8	218 11.9	3.6	26 53.6	6.4	59.8	S 60	16 03	16 49	17 40	12 22	13 50	14 27	14 38				
20		120 52.1	39.5	232 34.5	3.8	26 47.2	6.6	59.8												
21		135 52.1	40.2	246 57.3	3.8	26 40.6	6.7	59.8	</											

	ARIES	VENUS -4.2	MARS -1.3	JUPITER -1.9	SATURN +0.6	STARS	
G.M.T.	G.H.A.	G.H.A. Dec.	G.H.A. Dec.	G.H.A. Dec.	G.H.A. Dec.	Name S.H.A. Dec.	
d h	° ' "	° ' " ° ' "	° ' " ° ' "	° ' " ° ' "	° ' " ° ' "		
WEDNESDAY	7 00	224 39.6	214 39.1 N 5 47.3	329 43.5 S 23 23.4	47 16.2 N 2 45.6	195 06.6 N 9 41.0	Acamar 315 43.9 S 40 25.6
	01	239 42.0	229 40.7 47.1	344 46.3 23.5	62 18.8 45.6	210 08.8 41.1	Achernar 335 51.7 S 57 23.4
	02	254 44.5	244 42.4 46.9	359 49.1 23.5	77 21.3 45.6	225 10.9 41.2	Acrux 173 46.5 S 62 56.0
	03	269 47.0	259 44.1 46.7	14 51.9 23.6	92 23.9 45.7	240 13.1 41.3	Adhara 255 38.9 S 28 55.8
	04	284 49.4	274 45.7 46.6	29 54.7 23.7	107 26.5 45.7	255 15.3 41.4	Aldebaran 291 28.0 N 16 27.0
	05	299 51.9	289 47.4 46.4	44 57.6 23.8	122 29.1 45.8	270 17.4 41.5	
	06	314 54.4	304 49.0 N 5 46.2	60 00.4 S 23 23.9	137 31.7 N 2 45.8	285 19.6 N 9 41.6	Alioth 166 49.1 N 56 07.6
	07	329 56.8	319 50.7 46.0	75 03.2 24.0	152 34.2 45.8	300 21.8 41.7	Alkaid 153 24.4 N 49 27.9
	08	344 59.3	334 52.3 45.8	90 06.0 24.1	167 36.8 45.9	315 23.9 41.8	Al Na'ir 28 25.3 S 47 06.5
	09	0 01.8	349 53.9 45.7	105 08.8 24.2	182 39.4 45.9	330 26.1 41.9	Alnilam 276 20.4 S 1 13.2
	10	15 04.2	4 55.6 45.5	120 11.6 24.3	197 42.0 46.0	345 28.3 42.1	Alphard 218 28.8 S 8 31.5
	11	30 06.7	19 57.2 45.3	135 14.4 24.4	212 44.5 46.0	0 30.5 42.2	
	12	45 09.2	34 58.8 N 5 45.2	150 17.2 S 23 24.5	227 47.1 N 2 46.0	15 32.6 N 9 42.3	Alphecca 126 38.8 N 26 48.8
	13	60 11.6	50 00.5 45.0	165 20.1 24.6	242 49.7 46.1	30 34.8 42.4	Alpheratz 358 18.4 N 28 55.1
	14	75 14.1	65 02.1 44.8	180 22.9 24.7	257 52.3 46.1	45 37.0 42.5	Altair 62 40.6 N 8 46.9
	15	90 16.5	80 03.7 44.7	195 25.7 24.7	272 54.9 46.1	60 39.1 42.6	Ankaa 353 48.6 S 42 28.2
	16	105 19.0	95 05.3 44.5	210 28.5 24.8	287 57.4 46.2	75 41.3 42.7	Antares 113 06.8 S 26 22.1
	17	120 21.5	110 07.0 44.3	225 31.4 24.9	303 00.0 46.2	90 43.5 42.8	
	18	135 23.9	125 08.6 N 5 44.2	240 34.2 S 23 25.0	318 02.6 N 2 46.3	105 45.6 N 9 42.9	Arcturus 146 25.7 N 19 20.4
	19	150 26.4	140 10.2 44.0	255 37.0 25.1	333 05.2 46.3	120 47.8 43.0	Atria 108 38.2 S 68 58.5
	20	165 28.9	155 11.8 43.9	270 39.8 25.2	348 07.7 46.3	135 50.0 43.1	Avior 234 32.0 S 59 24.8
	21	180 31.3	170 13.4 43.7	285 42.7 25.3	3 10.3 46.4	150 52.1 43.2	Bellatrix 279 08.0 N 6 19.5
	22	195 33.8	185 15.0 43.6	300 45.5 25.4	18 12.9 46.4	165 54.3 43.3	Betelgeuse 271 37.6 N 7 24.2
	23	210 36.3	200 16.6 43.4	315 48.3 25.5	33 15.5 46.5	180 56.5 43.4	
THURSDAY	8 00	225 38.7	215 18.2 N 5 43.3	330 51.2 S 23 25.6	48 18.0 N 2 46.5	195 58.6 N 9 43.5	Canopus 264 11.3 S 52 40.8
	01	240 41.2	230 19.8 43.1	345 54.0 25.7	63 20.6 46.5	211 00.8 43.6	Capella 281 24.1 N 45 58.3
	02	255 43.7	245 21.4 43.0	0 56.9 25.8	78 23.2 46.6	226 03.0 43.7	Deneb 49 54.2 N 45 09.8
	03	270 46.1	260 23.0 42.8	15 59.7 25.8	93 25.8 46.6	241 05.1 43.9	Denebola 183 07.3 N 14 44.6
	04	285 48.6	275 24.5 42.7	31 02.5 25.9	108 28.3 46.6	256 07.3 44.0	Diphda 349 29.4 S 18 09.3
	05	300 51.0	290 26.1 42.6	46 05.4 26.0	123 30.9 46.7	271 09.5 44.1	
	06	315 53.5	305 27.7 N 5 42.4	61 08.2 S 23 26.1	138 33.5 N 2 46.7	286 11.6 N 9 44.2	Dubhe 194 31.7 N 61 55.3
	07	330 56.0	320 29.3 42.3	76 11.1 26.2	153 36.0 46.8	301 13.8 44.3	Elnath 278 55.0 N 28 35.1
	08	345 58.4	335 30.9 42.2	91 13.9 26.3	168 38.6 46.8	316 16.0 44.4	Eltanin 91 01.2 N 51 29.1
	09	1 00.9	350 32.4 42.0	106 16.8 26.4	183 41.2 46.8	331 18.2 44.5	Enif 34 19.9 N 9 43.8
	10	16 03.4	5 34.0 41.9	121 19.6 26.5	198 43.8 46.9	346 20.3 44.6	Fomalhaut 16 00.7 S 29 47.1
	11	31 05.8	20 35.6 41.8	136 22.5 26.6	213 46.3 46.9	1 22.5 44.7	
	12	46 08.3	35 37.1 N 5 41.6	151 25.3 S 23 26.7	228 48.9 N 2 46.9	16 24.7 N 9 44.8	Gacrux 172 38.0 S 56 56.7
	13	61 10.8	50 38.7 41.5	166 28.2 26.8	243 51.5 47.0	31 26.8 44.9	Gienah 176 26.4 S 17 22.5
	14	76 13.2	65 40.2 41.4	181 31.0 26.8	258 54.0 47.0	46 29.0 45.0	Hadar 149 35.0 S 60 13.8
	15	91 15.7	80 41.8 41.3	196 33.9 26.9	273 56.6 47.0	61 31.2 45.1	Hamal 328 38.8 N 23 19.0
	16	106 18.1	95 43.3 41.2	211 36.7 27.0	288 59.2 47.1	76 33.3 45.2	Kaus Aust. 84 27.7 S 34 24.1
	17	121 20.6	110 44.9 41.0	226 39.6 27.1	304 01.8 47.1	91 35.5 45.3	
	18	136 23.1	125 46.4 N 5 40.9	241 42.5 S 23 27.2	319 04.3 N 2 47.2	106 37.7 N 9 45.4	Kochab 137 16.8 N 74 16.8
	19	151 25.5	140 48.0 40.8	256 45.3 27.3	334 06.9 47.2	121 39.8 45.5	Markab 14 11.7 N 15 02.2
	20	166 28.0	155 49.5 40.7	271 48.2 27.4	349 09.5 47.2	136 42.0 45.6	Menkar 314 50.2 N 3 58.2
	21	181 30.5	170 51.1 40.6	286 51.0 27.5	4 12.0 47.3	151 44.2 45.7	Menkent 148 46.6 S 36 13.4
	22	196 32.9	185 52.6 40.5	301 53.9 27.6	19 14.6 47.3	166 46.4 45.8	Miaplacidus 221 47.2 S 69 35.7
	23	211 35.4	200 54.1 40.4	316 56.8 27.7	34 17.2 47.3	181 48.5 46.0	
FRIDAY	9 00	226 37.9	215 55.6 N 5 40.3	331 59.7 S 23 27.7	49 19.7 N 2 47.4	196 50.7 N 9 46.1	Mirfak 309 28.8 N 49 45.3
	01	241 40.3	230 57.2 40.2	347 02.5 27.8	64 22.3 47.4	211 52.9 46.2	Nunki 76 39.3 S 26 20.3
	02	256 42.8	245 58.7 40.1	2 05.4 27.9	79 24.9 47.4	226 55.0 46.3	Peacock 54 11.3 S 56 50.0
	03	271 45.2	261 00.2 40.0	17 08.3 28.0	94 27.4 47.5	241 57.2 46.4	Pollux 244 08.5 N 28 06.3
	04	286 47.7	276 01.7 39.9	32 11.1 28.1	109 30.0 47.5	256 59.4 46.5	Procyon 245 34.7 N 5 18.4
	05	301 50.2	291 03.3 39.8	47 14.0 28.2	124 32.6 47.5	272 01.5 46.6	
	06	316 52.6	306 04.8 N 5 39.7	62 16.9 S 23 28.3	139 35.1 N 2 47.6	287 03.7 N 9 46.7	Rasalhague 96 37.1 N 12 34.6
	07	331 55.1	321 06.3 39.6	77 19.8 28.4	154 37.7 47.6	302 05.9 46.8	Regulus 208 18.8 N 12 07.1
	08	346 57.6	336 07.8 39.5	92 22.7 28.5	169 40.3 47.6	317 08.0 46.9	Rigel 281 44.3 S 8 14.1
	09	2 00.0	351 09.3 39.4	107 25.5 28.5	184 42.8 47.7	332 10.2 47.0	Rigel Kent. 140 36.8 S 60 42.7
	10	17 02.5	6 10.8 39.3	122 28.4 28.6	199 45.4 47.7	347 12.4 47.1	Sabik 102 50.5 S 15 41.5
	11	32 05.0	21 12.3 39.2	137 31.3 28.7	214 47.9 47.7	2 14.6 47.2	
	12	47 07.4	36 13.8 N 5 39.1	152 34.2 S 23 28.8	229 50.5 N 2 47.8	17 16.7 N 9 47.3	Schedar 350 19.3 N 56 22.0
	13	62 09.9	51 15.3 39.1	167 37.1 28.9	244 53.1 47.8	32 18.9 47.4	Shaula 97 06.8 S 37 05.1
	14	77 12.4	66 16.8 39.0	182 40.0 29.0	259 55.6 47.8	47 21.1 47.5	Sirius 259 03.3 S 16 40.4
	15	92 14.8	81 18.3 38.9	197 42.9 29.1	274 58.2 47.9	62 23.2 47.6	Spica 159 06.1 S 11 00.3
	16	107 17.3	96 19.7 38.8	212 45.8 29.2	290 00.8 47.9	77 25.4 47.7	Suhail 223 17.1 S 43 18.7
	17	122 19.7	111 21.2 38.7	227 48.7 29.3	305 03.3 47.9	92 27.6 47.8	
	18	137 22.2	126 22.7 N 5 38.7	242 51.6 S 23 29.3	320 05.9 N 2 48.0	107 29.7 N 9 47.9	Vega 81 01.3 N 38 44.9
	19	152 24.7	141 24.2 38.6	257 54.5 29.4	335 08.5 48.0	122 31.9 48.0	Zuben'ubi 137 42.0 S 15 55.1
	20	167 27.1	156 25.7 38.5	272 57.4 29.5	350 11.0 48.0	137 34.1 48.1	
	21	182 29.6	171 27.1 38.5	288 00.3 29.6	5 13.6 48.1	152 36.2 48.3	S.H.A. Mer. Pass.
	22	197 32.1	186 28.6 38.4	303 03.2 29.7	20 16.1 48.1	167 38.4 48.4	Venus 349 39.5 9 38
	23	212 34.5	201 30.1 38.3	318 06.1 29.8	35 18.7 48.1	182 40.6 48.5	Mars 105 12.5 1 56
						Jupiter 182 39.3 20 43	
						Saturn 330 19.9 10 55	
Mer. Pass.	8 56-0	v 1.6 d 0.1	v 2.9 d 0.1	v 2.6 d 0.0	v 2.2 d 0.1		

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise						
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.	Civil		7	8	9	10		
d	h	°	'	°	'	°	'	°	h	m	h	m	h	m	h	m	h	m
7	00	180	52.2	N16	42.3	290	06.2	4.1	S	26	19.8	7.3	59.7					
	01	195	52.3		43.0	304	29.3	4.3		26	12.5	7.4	59.7					
	02	210	52.3		43.7	318	52.6	4.4		26	05.1	7.7	59.7					
	03	225	52.4		44.4	333	16.0	4.5		25	57.4	7.7	59.7					
	04	240	52.4		45.1	347	39.5	4.7		25	49.7	8.0	59.7					
	05	255	52.5		45.8	2	03.2	4.7		25	41.7	8.1	59.6					
	06	270	52.5	N16	46.5	16	26.9	4.9	S	25	33.6	8.3	59.6					
	07	285	52.5		47.1	30	50.8	5.0		25	25.3	8.5	59.6					
	08	300	52.6		47.8	45	14.8	5.1		25	16.8	8.6	59.6					
	09	315	52.6		48.5	59	38.9	5.2		25	08.2	8.8	59.6					
WEDNESDAY	10	330	52.7		49.2	74	03.1	5.3	24	59.4	8.9	59.5						
	11	345	52.7		49.9	88	27.4	5.5	24	50.5	9.1	59.5						
	12	0	52.8	N16	50.6	102	51.9	5.6	S	24	41.4	9.2	59.5					
	13	15	52.8		51.3	117	16.5	5.7	24	32.2	9.4	59.5						
	14	30	52.8		52.0	131	41.2	5.8	24	22.8	9.5	59.4						
	15	45	52.9		52.7	146	06.0	5.9	24	13.3	9.7	59.4						
	16	60	52.9		53.4	160	30.9	6.1	24	03.6	9.8	59.4						
	17	75	53.0		54.0	174	56.0	6.2	23	53.8	10.0	59.4						
	18	90	53.0	N16	54.7	189	21.2	6.4	S	23	43.8	10.1	59.4					
	19	105	53.1		55.4	203	46.6	6.4	23	33.7	10.2	59.3						
THURSDAY	20	120	53.1		56.1	218	12.0	6.6	23	23.5	10.4	59.3						
	21	135	53.1		56.8	232	37.6	6.7	23	13.1	10.5	59.3						
	22	150	53.2		57.5	247	03.3	6.8	23	02.6	10.6	59.3						
	23	165	53.2		58.2	261	29.1	7.0	22	52.0	10.8	59.2						
	00	180	53.3	N16	58.8	275	55.1	7.1	S	22	41.2	10.9	59.2					
	01	195	53.3		59.5	290	21.2	7.2	22	30.3	11.0	59.2						
	02	210	53.3		60.2	304	47.4	7.3	22	19.3	11.2	59.2						
	03	225	53.4		60.9	319	13.7	7.4	22	08.1	11.3	59.2						
	04	240	53.4		61.6	333	40.1	7.6	21	56.8	11.4	59.1						
	05	255	53.4		62.2	348	06.7	7.7	21	45.4	11.5	59.1						
FRIDAY	06	270	53.5	N17	02.9	2	33.4	7.9	S	21	33.9	11.6	59.1					
	07	285	53.5		03.6	17	00.3	7.9	21	22.3	11.8	59.1						
	08	300	53.6		04.3	31	27.2	8.1	21	10.5	11.8	59.0						
	09	315	53.6		05.0	45	54.3	8.2	20	58.7	12.0	59.0						
	10	330	53.6		05.6	60	21.5	8.3	20	46.7	12.1	59.0						
	11	345	53.7		06.3	74	48.8	8.5	20	34.6	12.2	59.0						
	12	0	53.7	N17	07.0	89	16.3	8.6	S	20	22.4	12.3	58.9					
	13	15	53.7		07.7	103	43.9	8.6	20	10.1	12.4	58.9						
	14	30	53.8		08.4	118	11.5	8.9	19	57.7	12.5	58.9						
	15	45	53.8		09.0	132	39.4	8.9	19	45.2	12.6	58.9						
SATURDAY	16	60	53.8		09.7	147	07.3	9.0	19	32.6	12.7	58.8						
	17	75	53.9		10.4	161	35.3	9.2	19	19.9	12.8	58.8						
	18	90	53.9	N17	11.1	176	03.5	9.3	S	19	07.1	12.9	58.8					
	19	105	53.9		11.7	190	31.8	9.4	18	54.2	13.0	58.8						
	20	120	54.0		12.4	205	00.2	9.5	18	41.2	13.1	58.7						
	21	135	54.0		13.1	219	28.7	9.7	18	28.1	13.1	58.7						
	22	150	54.0		13.7	233	57.4	9.7	18	15.0	13.3	58.7						
	23	165	54.1		14.4	248	26.1	9.9	18	01.7	13.3	58.7						
	00	180	54.1	N17	15.1	262	55.0	9.9	S	17	48.4	13.5	58.6					
	01	195	54.1		15.8	277	23.9	10.1	17	34.9	13.5	58.6						
SUNDAY	02	210	54.2		16.4	291	53.0	10.2	17	21.4	13.6	58.6						
	03	225	54.2		17.1	306	22.2	10.3	17	07.8	13.6	58.6						
	04	240	54.2		17.8	320	51.5	10.4	16	54.2	13.8	58.5						
	05	255	54.3		18.4	335	20.9	10.6	16	40.4	13.8	58.5						
	06	270	54.3	N17	19.1	349	50.5	10.6	S	16	26.6	13.9	58.5					
	07	285	54.3		19.8	4	20.1	10.7	16	12.7	13.9	58.5						
	08	300	54.4		20.4	18	49.8	10.9	15	58.8	14.1	58.4						
	09	315	54.4		21.1	33	19.7	10.9	15	44.7	14.1	58.4						
	10	330	54.4		21.8	47	49.6	11.0	15	30.6	14.1	58.4						
	11	345	54.4		22.4	62	19.6	11.2	15	16.5	14.3	58.4						
MONDAY	12	0	54.5	N17	23.1	76	49.8	11.2	S	15	02.2	14.3	58.3					
	13	15	54.5		23.8	91	20.0	11.4	14	47.9	14.3	58.3						
	14	30	54.5		24.4	105	50.4	11.4	14	33.6	14.5	58.3						
	15	45	54.6		25.1	120	20.8	11.5	14	19.1	14.4	58.3						
	16	60	54.6		25.8	134	51.3	11.6	14	04.7	14.6	58.2						
	17	75	54.6		26.4	149	21.9	11.8	13	50.1	14.6	58.2						
	18	90	54.7	N17	27.1	163	52.7	11.8	S	13	35.5	14.6	58.2					
	19	105	54.7		27.8	178	23.5	11.9	13	20.9	14.7	58.2						
	20	120	54.7		28.4	192	54.4	12.0	13	06.2	14.8	58.1						
	21	135	54.7		29.1	207	25.4	12.0	12	51.4	14.8	58.1						
TUESDAY	22	150	54.8		29.7	221	56.4	12.2	12	36.6	14.8	58.1						
	23	165	54.8		30.4	236	27.6	12.2	12	21.8	14.9	58.1						
S.D. 15.9		<i>d</i>	0.7	S.D.		16.2	16.1		15.9									
Day		SUN			MOON				Mer. Pass.	Mer. Pass.			Age	Phase				
		Eqn. of Time																
		00h	12h							Upper	Lower							
		m	s							h	m		d					
7		03 29	03 31	11 56						04 51	17 21	21						
8		03 33	03 35	11 56						05 49	18 16	22						
9		03 36	03 38	11 56						06 42	19 07	23						

		ARIES		VENUS -4.2		MARS -1.4		JUPITER -1.8		SATURN +0.6		STARS				
G.M.T.		G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.	
d	h	°	'	"	°	'	"	°	'	"	°	'	°	'	"	
10	00	227 37.0	216 31.5	N 5 38.3	333 09.0	S 23 29.9	50 21.3	N 2 48.2	197 42.8	N 9 48.6	Acamar	315 43.9	S 40 25.5			
	01	242 39.5	231 33.0	38.2	348 11.9	29.9	65 23.8	48.2	212 44.9	48.7	Achernar	335 51.7	S 57 23.4			
	02	257 41.9	246 34.4	38.1	3 14.8	30.0	80 26.4	48.2	227 47.1	48.8	Acrux	173 46.5	S 62 56.0			
	03	272 44.4	261 35.9	38.1	18 17.7	30.1	95 28.9	48.3	242 49.3	48.9	Adhara	255 38.9	S 28 55.8			
	04	287 46.9	276 37.4	38.0	33 20.6	30.2	110 31.5	48.3	257 51.4	49.0	Aldebaran	291 28.0	N 16 27.0			
	05	302 49.3	291 38.8	38.0	48 23.5	30.3	125 34.1	48.3	272 53.6	49.1						
	06	317 51.8	306 40.2	N 5 37.9	63 26.4	S 23 30.4	140 36.6	N 2 48.4	287 55.8	N 9 49.2	Alioth	166 49.1	N 56 07.6			
	07	332 54.2	321 41.7	37.8	78 29.3	30.5	155 39.2	48.4	302 57.9	49.3	Alkaid	153 24.4	N 49 27.9			
	08	347 56.7	336 43.1	37.8	93 32.3	30.6	170 41.7	48.4	318 00.1	49.4	Al Na'ir	28 25.3	S 47 06.5			
	09	2 59.2	351 44.6	37.7	108 35.2	30.6	185 44.3	48.4	333 02.3	49.5	Alnilam	276 20.4	S 1 13.1			
	10	18 01.6	6 46.0	37.7	123 38.1	30.7	200 46.8	48.5	348 04.5	49.6	Alphard	218 28.8	S 8 31.5			
	11	33 04.1	21 47.4	37.7	138 41.0	30.8	215 49.4	48.5	3 06.6	49.7						
	12	48 06.6	36 48.9	N 5 37.6	153 43.9	S 23 30.9	230 52.0	N 2 48.5	18 08.8	N 9 49.8	Alphecca	126 38.8	N 26 48.8			
	13	63 09.0	51 50.3	37.6	168 46.9	31.0	245 54.5	48.6	33 11.0	49.9	Alpheratz	358 18.3	N 28 55.1			
	14	78 11.5	66 51.7	37.5	183 49.8	31.1	260 57.1	48.6	48 13.1	50.0	Altair	62 40.6	N 8 46.9			
	15	93 14.0	81 53.2	37.5	198 52.7	31.2	275 59.6	48.6	63 15.3	50.1	Ankaa	353 48.6	S 42 28.2			
	16	108 16.4	96 54.6	37.4	213 55.6	31.2	291 02.2	48.7	78 17.5	50.2	Antares	113 06.8	S 26 22.1			
	17	123 18.9	111 56.0	37.4	228 58.6	31.3	306 04.7	48.7	93 19.6	50.3						
	18	138 21.3	126 57.4	N 5 37.4	244 01.5	S 23 31.4	321 07.3	N 2 48.7	108 21.8	N 9 50.4	Arcturus	146 25.7	N 19 20.4			
	19	153 23.8	141 58.8	37.3	259 04.4	31.5	336 09.9	48.7	123 24.0	50.5	Atria	108 38.2	S 68 58.5			
	20	168 26.3	157 00.2	37.3	274 07.4	31.6	351 12.4	48.8	138 26.2	50.6	Avior	234 32.0	S 59 24.8			
	21	183 28.7	172 01.6	37.3	289 10.3	31.7	6 15.0	48.8	153 28.3	50.8	Bellatrix	279 08.0	N 6 19.5			
	22	198 31.2	187 03.0	37.2	304 13.2	31.8	21 17.5	48.8	168 30.5	50.9	Betelgeuse	271 37.6	N 7 24.2			
	23	213 33.7	202 04.4	37.2	319 16.2	31.8	36 20.1	48.9	183 32.7	51.0						
11	00	228 36.1	217 05.8	N 5 37.2	334 19.1	S 23 31.9	51 22.6	N 2 48.9	198 34.8	N 9 51.1	Canopus	264 11.3	S 52 40.8			
	01	243 38.6	232 07.2	37.2	349 22.0	32.0	66 25.2	48.9	213 37.0	51.2	Capella	281 24.1	N 45 58.3			
	02	258 41.1	247 08.6	37.2	4 25.0	32.1	81 27.7	48.9	228 39.2	51.3	Deneb	49 54.2	N 45 09.8			
	03	273 43.5	262 10.0	37.1	19 27.9	32.2	96 30.3	49.0	243 41.4	51.4	Denebola	183 07.3	N 14 44.6			
	04	288 46.0	277 11.4	37.1	34 30.9	32.3	111 32.8	49.0	258 43.5	51.5	Diphda	349 29.4	S 18 09.2			
	05	303 48.5	292 12.8	37.1	49 33.8	32.4	126 35.4	49.0	273 45.7	51.6						
	06	318 50.9	307 14.2	N 5 37.1	64 36.8	S 23 32.4	141 37.9	N 2 49.1	288 47.9	N 9 51.7	Dubhe	194 31.7	N 61 55.3			
	07	333 53.4	322 15.6	37.1	79 39.7	32.5	156 40.5	49.1	303 50.0	51.8	Elnath	278 55.0	N 28 35.1			
	08	348 55.8	337 17.0	37.1	94 42.7	32.6	171 43.0	49.1	318 52.2	51.9	Eltanin	91 01.2	N 51 29.2			
	09	3 58.3	352 18.3	37.0	109 45.6	32.7	186 45.6	49.1	333 54.4	52.0	Enif	34 19.8	N 9 43.8			
	10	19 00.8	7 19.7	37.0	124 48.6	32.8	201 48.1	49.2	348 56.5	52.1	Fomalhaut	16 00.6	S 29 47.1			
	11	34 03.2	22 21.1	37.0	139 51.5	32.9	216 50.7	49.2	3 58.7	52.2						
	12	49 05.7	37 22.5	N 5 37.0	154 54.5	S 23 32.9	231 53.2	N 2 49.2	19 00.9	N 9 52.3	Gacrux	172 38.0	S 56 56.8			
	13	64 08.2	52 23.8	37.0	169 57.4	33.0	246 55.8	49.2	34 03.1	52.4	Gienah	176 26.4	S 17 22.5			
	14	79 10.6	67 25.2	37.0	185 00.4	33.1	261 58.3	49.3	49 05.2	52.5	Hadar	149 35.0	S 60 13.8			
	15	94 13.1	82 26.6	37.0	200 03.3	33.2	277 00.9	49.3	64 07.4	52.6	Hamal	328 38.8	N 23 19.0			
	16	109 15.6	97 27.9	37.0	215 06.3	33.3	292 03.4	49.3	79 09.6	52.7	Kaus Aust.	84 27.6	S 34 24.1			
	17	124 18.0	112 29.3	37.0	230 09.3	33.4	307 06.0	49.4	94 11.7	52.8						
	18	139 20.5	127 30.6	N 5 37.0	245 12.2	S 23 33.4	322 08.5	N 2 49.4	109 13.9	N 9 52.9	Kochab	137 16.8	N 74 16.8			
	19	154 23.0	142 32.0	37.0	260 15.2	33.5	337 11.1	49.4	124 16.1	53.0	Markab	14 11.7	N 15 02.2			
	20	169 25.4	157 33.3	37.0	275 18.2	33.6	352 13.6	49.4	139 18.3	53.1	Menkar	314 50.2	N 3 58.3			
	21	184 27.9	172 34.7	37.0	290 21.1	33.7	7 16.2	49.5	154 20.4	53.2	Menkent	148 46.6	S 36 13.4			
	22	199 30.3	187 36.0	37.1	305 24.1	33.8	22 18.7	49.5	169 22.6	53.3	Miaplacidus	221 47.3	S 69 35.7			
	23	214 32.8	202 37.4	37.1	320 27.1	33.9	37 21.3	49.5	184 24.8	53.4						
12	00	229 35.3	217 38.7	N 5 37.1	335 30.1	S 23 33.9	52 23.8	N 2 49.5	199 26.9	N 9 53.5	Mirfak	309 28.8	N 49 45.3			
	01	244 37.7	232 40.0	37.1	350 33.0	34.0	67 26.4	49.6	214 29.1	53.6	Nunki	76 39.3	S 26 20.3			
	02	259 40.2	247 41.4	37.1	5 36.0	34.1	82 28.9	49.6	229 31.3	53.7	Peacock	54 11.2	S 56 50.0			
	03	274 42.7	262 42.7	37.1	20 39.0	34.2	97 31.5	49.6	244 33.5	53.8	Pollux	244 08.5	N 28 06.3			
	04	289 45.1	277 44.0	37.2	35 42.0	34.3	112 34.0	49.6	259 35.6	54.0	Procyon	245 34.7	N 5 18.4			
	05	304 47.6	292 45.4	37.2	50 44.9	34.4	127 36.6	49.7	274 37.8	54.1						
	06	319 50.1	307 46.7	N 5 37.2	65 47.9	S 23 34.4	142 39.1	N 2 49.7	289 40.0	N 9 54.2	Rasalhague	96 37.1	N 12 34.6			
	07	334 52.5	322 48.0	37.2	80 50.9	34.5	157 41.7	49.7	304 42.1	54.3	Regulus	208 18.8	N 12 07.1			
	08	349 55.0	337 49.3	37.2	95 53.9	34.6	172 44.2	49.7	319 44.3	54.4	Rigel	281 44.3	S 8 14.1			
	09	4 57.5	352 50.7	37.3	110 56.9	34.7	187 46.7	49.8	334 46.5	54.5	Rigel Kent.	140 36.8	S 60 42.7			
	10	19 59.9	7 52.0	37.3	125 59.9	34.8	202 49.3	49.8	349 48.7	54.6	Sabik	102 50.4	S 15 41.5			
	11	35 02.4	22 53.3	37.3	141 02.8	34.8	217 51.8	49.8	4 50.8	54.7						
	12	50 04.8	37 54.6	N 5 37.4	156 05.8	S 23 34.9	232 54.4	N 2 49.8	19 53.0	N 9 54.8	Schedar	350 19.3	N 56 22.0			
	13	65 07.3	52 55.9	37.4	171 08.8	35.0	247 56.9	49.9	34 55.2	54.9	Shaula	97 06.8	S 37 05.1			
	14	80 09.8	67 57.2	37.4	186 11.8	35.1	262 59.5	49.9	49 57.3	55.0	Sirius	259 03.3	S 16 40.4			
	15	95 12.2	82 58.5	37.5	201 14.8	35.2	278 02.0	49.9	64 59.5	55.1	Spica	159 06.1	S 11 00.3			
	16	110 14.7	97 59.8	37.5	216 17.8	35.3	293 04.5	49.9	80 01.7	55.2	Suhail	223 17.2	S 43 18.7			
	17	125 17.2	113 01.1	37.5	231 20.8	35.3	308 07.1	50.0	95 03.9	55.3						
	18	140 19.6	128 02.4	N 5 37.6	246 23.8	S 23 35.4	323 09.6	N 2 50.0	110 06.0	N 9 55.4	Vega	81 01.2	N 38 44.9			
	19	155 22.1	143 03.7	37.6	261 26.8	35.5	338 12.2	50.0	125 08.2	55.5	Zuben'ubi	137 42.0	S 15 55.1			
	20	170 24.6	158 05.0	37.7	276 29.8	35.6	353 14.7	50.0	140 10.4	55.6						
	21	185 27.0	173 06.3	37.7	291 32.8	35.7	8 17.3	50.1	155 12.5	55.7						
	22	200 29.5	188 07.6	37.8	306 35.8	35.7	23 19.8	50.1	170 14.7	55.8	Venus	348 29.7	h 9 31			
	23	215 31.9	203 08.9	37.8	321 38.8	35.8	38 22.3	50.1	185 16.9	55.9	Mars	105 43.0	h 1 42			
Mer. Pass. 8 44.2		v 1.4 d 0.0			v 3.0 d 0.1			v 2.6 d 0.0			v 2.2 d 0.1			Mer. Pass. 8 44.2		
h m																

G.M.T.		SUN				MOON				Lat.	Twilight		Sun-rise	Moonrise												
		G.H.A.	Dec.	G.H.A.	Dec.	d	H.P.	Naut.	Civil		10	11		12	13											
d	h	°	'	°	'	°	'	°	'	°	'	°	'	°	'	°	'									
SATURDAY	00	180	54.8	N17	31.1	250	58.8	12.4	S	12	06.9	15.0	58.0	N 70	68	66	64	62	60	01 25	03 37	03 05	02 38	02 11		
	01	195	54.8		31.7	265	30.2	12.4		11	51.9	15.0	58.0	68	66	64	62	60	01 25	03 37	03 05	02 38	02 11			
	02	210	54.9		32.4	280	01.6	12.5		11	36.9	15.0	58.0	66	64	62	60	00 29	02 39	03 11	02 55	02 40	02 26			
	03	225	54.9		33.0	294	33.1	12.6		11	21.9	15.1	58.0	64	62	60	58	01 35	03 01	03 01	02 50	02 41	02 32			
	04	240	54.9		33.7	309	04.7	12.6		11	06.8	15.1	57.9	62	60	58	56	02 09	03 18	02 52	02 47	02 41	02 36			
	05	255	54.9		34.4	323	36.3	12.8		10	51.7	15.1	57.9	60	58	56	54	00 25	02 33	03 33	02 44	02 43	02 42	02 41		
	06	270	55.0	N17	35.0	338	08.1	12.8	S	10	36.6	15.2	57.9	N 58	56	54	52	01 26	02 52	03 45	02 38	02 40	02 42	02 44		
	07	285	55.0		35.7	352	39.9	12.8		10	21.4	15.2	57.9	56	54	52	50	01 56	03 07	03 55	02 32	02 38	02 43	02 48		
	08	300	55.0		36.3		7	11.7	13.0		10	06.2	15.3	57.8	54	52	50	48	02 19	03 20	04 05	02 27	02 36	02 43	02 51	
	09	315	55.0		37.0		21	43.7	13.0		9	50.9	15.3	57.8	52	50	48	46	02 37	03 32	04 13	02 22	02 33	02 44	02 54	
	10	330	55.1		37.6		36	15.7	13.1		9	35.6	15.3	57.8	50	48	46	44	02 51	03 42	04 20	02 18	02 31	02 44	02 56	
	11	345	55.1		38.3		50	47.8	13.2		9	20.3	15.4	57.8	45	43	41	39	03 20	04 02	04 36	02 08	02 27	02 45	03 02	
	12		0 55.1	N17	38.9		65	20.0	13.2	S	9	04.9	15.4	57.7	N 40	38	36	34	03 42	04 19	04 49	02 00	02 24	02 45	03 07	
	13		15 55.1		39.6		79	52.2	13.3		8	49.5	15.4	57.7	35	33	31	29	03 59	04 32	05 00	01 54	02 21	02 46	03 11	
	14		30 55.2		40.2		94	24.5	13.4		8	34.1	15.4	57.7	30	28	26	24	04 12	04 44	05 09	01 48	02 18	02 46	03 14	
	15		45 55.2		40.9		108	56.9	13.4		8	18.7	15.5	57.7	20	18	16	14	04 35	05 02	05 26	01 37	02 13	02 47	03 21	
	16		60 55.2		41.5		123	29.3	13.5		8	03.2	15.4	57.6	N 10	08	06	04	04 52	05 18	05 40	01 28	02 09	02 48	03 26	
	17		75 55.2		42.2		138	01.8	13.6		7	47.8	15.5	57.6	0	05 06	05 31	05 53	05 06	05 31	05 53	01 19	02 05	02 49	03 32	
	18		90 55.2	N17	42.8		152	34.4	13.6	S	7	32.3	15.6	57.6	S 10	08	06	04	05 18	05 44	06 06	01 10	02 01	02 49	03 37	
	19		105 55.3		43.5		167	07.0	13.7		7	16.7	15.5	57.6	20	18	16	14	05 30	05 56	06 19	01 01	01 57	02 50	03 43	
	20		120 55.3		44.1		181	39.7	13.7		7	01.2	15.6	57.5	30	28	26	24	05 41	06 10	06 35	00 50	01 52	02 51	03 49	
	21		135 55.3		44.8		196	12.4	13.8		6	45.6	15.6	57.5	35	33	31	29	05 47	06 17	06 44	00 44	01 49	02 52	03 53	
	22		150 55.3		45.4		210	45.2	13.8		6	30.0	15.6	57.5	40	38	36	34	05 53	06 25	06 54	00 37	01 46	02 52	03 58	
	23		165 55.4		46.1		225	18.0	13.9		6	14.4	15.6	57.5	45	43	41	39	05 59	06 35	07 06	00 29	01 42	02 53	04 03	
SUNDAY	00	180	55.4	N17	46.7	239	50.9	13.9	S	5	58.8	15.6	57.4	S 50	48	46	44	06 06	06 45	07 21	00 19	01 38	02 54	04 09		
	01	195	55.4		47.4	254	23.8	14.0		5	43.2	15.7	57.4	52	50	48	46	06 09	06 50	07 28	00 14	01 36	02 54	04 12		
	02	210	55.4		48.0	268	56.8	14.1		5	27.5	15.6	57.4	54	52	50	48	06 13	06 56	07 35	00 09	01 33	02 55	04 15		
	03	225	55.4		48.7	283	29.9	14.1		5	11.9	15.7	57.4	56	54	52	50	06 16	07 02	07 43	00 03	01 31	02 55	04 18		
	04	240	55.5		49.3	298	03.0	14.1		4	56.2	15.7	57.3	58	56	54	52	06 20	07 08	07 53	25 28	01 28	02 56	04 22		
	05	255	55.5		50.0	312	36.1	14.2		4	40.5	15.6	57.3	S 60	58	56	54	06 24	07 15	08 04	25 25	01 25	02 57	04 27		
	06	270	55.5	N17	50.6	327	09.3	14.2	S	4	24.9	15.7	57.3													
	07	285	55.5		51.3	341	42.5	14.2		4	09.2	15.7	57.3													
	08	300	55.5		51.9	356	15.7	14.3		3	53.5	15.7	57.2													
	09	315	55.5		52.5	370	49.1	14.3		3	37.8	15.7	57.2													
	10	330	55.6		53.2	385	22.4	14.4		3	22.1	15.7	57.2													
	11	345	55.6		53.8	399	55.8	14.4		3	06.4	15.7	57.2													
	12		0 55.6	N17	54.5	54	29.2	14.4	S	2	50.7	15.7	57.1	N 72	70	68	66	64	62	60	22 35	23 17	11 52	13 58	15 59	18 02
	13		15 55.6		55.1	69	02.6	14.5		2	35.0	15.7	57.1	N 70	68	66	64	62	60	21 47	22 31	12 04	14 01	15 53	17 47	
	14		30 55.6		55.7	83	36.1	14.5		2	19.3	15.7	57.1	66	64	62	60	58	21 17	22 03	22 23	12 14	14 04	15 49	17 35	
	15		45 55.7		56.4	98	09.6	14.6		2	03.6	15.7	57.1	64	62	60	58	56	20 54	21 42	22 23	12 22	14 06	15 45	17 25	
	16		60 55.7		57.0	112	43.2	14.6		1	47.9	15.7	57.1	62	60	58	56	54	20 37	21 27	22 08	12 29	14 07	15 42	17 17	
	17		75 55.7		57.7	127	16.8	14.6		1	32.2	15.7	57.0	60	58	56	54	52	20 22	21 12	21 53	12 35	14 09	15 40	17 10	
	18		90 55.7	N17	58.3	141	50.4	14.6	S	1	16.5	15.7	57.0	N 58	56	54	52	50	20 09	21 03	22 32	12 41	14 10	15 37	17 04	
	19		105 55.7		58.9	156	24.0	14.7		1	00.8	15.7	57.0	56	54	52	50	48	19 59	20 47	22 00	12 45	14 12	15 35	16 58	
	20		120 55.7		59.6	170	57.7	14.7		0	45.1	15.6	57.0	54	52	50	48	46	19 49	20 34	21 36	12 50	14 13	15 33	16 53	
	21		135 55.7		60.2	185	31.4	14.7		0	29.5	15.7	56.9	52	50	48	46	44	19 41	20 22	21 18	12 53	14 14	15 32	16 49	
	22		150 55.8		60.9	200	05.1	14.7	S	0	13.8	15.6	56.9	50	48	46	44	42	19 33	20 12	21 03	12 57	14 14	15 30	16 45	
	23		165 55.8		61.5	214	38.8	14.8	N	0	01.8	15.7	56.9	45	43	41	39	37	19 17	19 51	20 34	13 04	14 16	15 27	16 36	
MONDAY	00	180	55.8	N18	02.1	229	12.6	14.7	N	0	17.5	15.6	56.9	N 40	38	36	34	19 04	19 35	20 12	13 10	14 18	15 24	16 29		
	01	195	55.8		02.8	243	46.3	14.8		0	33.1	15.6	56.8	35	33	31	29	18 53	19 21	19 55	13 16	14 19	15 21	16 23		
	02	210	55.8		03.4	258	20.1	14.8		0	48.7	15.6	56.8	30	28	26	24	18 44	19 10	19 41	13 20	14 20	15 19	16 17		
	03	225	55.8		04.0	272	53.9	14.9		1	04.3	15.5	56.8	20	18	16	14	18 27	18 51	19 18	13 28	14 22	15 15	16 08		
	04	240	55.8		04.7	287	27.8	14.8		1	19.8	15.6	56.8	N 10	08	06	04	18 13	18 35	19 01	13 35	14 24	15 12	16 00		
	05	255	55.9		05.3	302	01.6	14.9		1	35.4	15.5	56.8	0	18 00	18 22	18 47	18 00	18 22	18 47	13 41	14 26	15 09	15 52		
	06	270	55.9	N18	05.9	316	35.5	14.8	N	1	50.9	15.6	56.7	S 10	08	06	04	17 47	18 09	18 34	13 48	14 27	15 06	15 45		
	07	285	55.9		06.6	331	09.3	14.9		2	06.5	15.5	56.7	20	18	16	14	17 33	17 56	18 23	13 54	14 29	15 03	15 37		
	08	300	55.9		07.2	345	43.2	14.9		2	22.0	15.4	56.7	30	28	26	24	17 17	17 43	18 11	14 02	14 31	14 59	15 28		
	09	315	55.9		07.8		0	17.1	14.9		2	37.4	15.5	56.7	35	33	31	29	17 08	17 35	18 05	14 06	14 32	14 57	15 22	

G.M.T.	ARIES			VENUS -4.2			MARS -1.5			JUPITER -1.8			SATURN +0.6			STARS		
	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /		o /	o /
13 00	230 34.4	218 10.2 N	5 37.9	336 41.8 S	23 35.9		53 24.9 N	2 50.1		200 19.1 N	9 56.0		Acamar	315 43.8	S 40 25.5			
01	245 36.9	233 11.4	37.9	351 44.8	36.0		68 27.4	50.1		215 21.2	56.1		Achernar	335 51.7	S 57 23.4			
02	260 39.3	248 12.7	38.0	6 47.8	36.1		83 30.0	50.2		230 23.4	56.2		Acruz	173 46.5	S 62 56.0			
03	275 41.8	263 14.0	38.0	21 50.8	36.1		98 32.5	50.2		245 25.6	56.3		Adhara	255 39.0	S 28 55.8			
04	290 44.3	278 15.3	38.1	36 53.8	36.2		113 35.0	50.2		260 27.8	56.4		Aldebaran	291 28.0	N 16 27.0			
05	305 46.7	293 16.5	38.1	51 56.9	36.3		128 37.6	50.2		275 29.9	56.5							
06	320 49.2	308 17.8 N	5 38.2	66 59.9 S	23 36.4		143 40.1 N	2 50.3		290 32.1 N	9 56.6		Alioth	166 49.1	N 56 07.7			
07	335 51.7	323 19.1	38.3	82 02.9	36.4		158 42.7	50.3		305 34.3	56.7		Alkaid	153 24.4	N 49 27.9			
08	350 54.1	338 20.3	38.3	97 05.9	36.5		173 45.2	50.3		320 36.4	56.8		Al Na'ir	28 25.3	S 47 06.5			
09	5 56.6	353 21.6	38.4	112 08.9	36.6		188 47.7	50.3		335 38.6	56.9		Alnilam	276 20.4	S 1 13.1			
10	20 59.0	8 22.8	38.5	127 11.9	36.7		203 50.3	50.3		350 40.8	57.0		Alphard	218 28.8	S 8 31.5			
11	36 01.5	23 24.1	38.5	142 15.0	36.8		218 52.8	50.4		5 43.0	57.1							
12	51 04.0	38 25.4 N	5 38.6	157 18.0 S	23 36.8		233 55.3 N	2 50.4		20 45.1 N	9 57.2		Alphecca	126 38.8	N 26 48.8			
13	66 06.4	53 26.6	38.7	172 21.0	36.9		248 57.9	50.4		35 47.3	57.3		Alpheratz	358 18.3	N 28 55.1			
14	81 08.9	68 27.9	38.7	187 24.0	37.0		264 00.4	50.4		50 49.5	57.4		Altair	62 40.5	N 8 46.9			
15	96 11.4	83 29.1	38.8	202 27.0	37.1		279 02.9	50.4		65 51.6	57.5		Ankaa	353 48.6	S 42 28.2			
16	111 13.8	98 30.4	38.9	217 30.1	37.2		294 05.5	50.5		80 53.8	57.6		Antares	113 06.8	S 26 22.1			
17	126 16.3	113 31.6	39.0	232 33.1	37.2		309 08.0	50.5		95 56.0	57.7							
18	141 18.8	128 32.8 N	5 39.0	247 36.1 S	23 37.3		324 10.6 N	2 50.5		110 58.2 N	9 57.8		Arcturus	146 25.7	N 19 20.4			
19	156 21.2	143 34.1	39.1	262 39.2	37.4		339 13.1	50.5		126 00.3	57.9		Atria	108 38.2	S 68 58.5			
20	171 23.7	158 35.3	39.2	277 42.2	37.5		354 15.6	50.5		141 02.5	58.0		Avior	234 32.1	S 59 24.8			
21	186 26.2	173 36.5	39.3	292 45.2	37.5		9 18.2	50.6		156 04.7	58.1		Bellatrix	279 08.0	N 6 19.5			
22	201 28.6	188 37.8	39.4	307 48.3	37.6		24 20.7	50.6		171 06.9	58.3		Betelgeuse	271 37.6	N 7 24.3			
23	216 31.1	203 39.0	39.4	322 51.3	37.7		39 23.2	50.6		186 09.0	58.4							
14 00	231 33.5	218 40.2 N	5 39.5	337 54.3 S	23 37.8		54 25.8 N	2 50.6		201 11.2 N	9 58.5		Canopus	264 11.4	S 52 40.8			
01	246 36.0	233 41.4	39.6	352 57.4	37.9		69 28.3	50.6		216 13.4	58.6		Capella	281 24.1	N 45 58.3			
02	261 38.5	248 42.7	39.7	8 00.4	37.9		84 30.8	50.7		231 15.6	58.7		Deneb	49 54.2	N 45 09.8			
03	276 40.9	263 43.9	39.8	23 03.5	38.0		99 33.4	50.7		246 17.7	58.8		Denebola	183 07.3	N 14 44.6			
04	291 43.4	278 45.1	39.9	38 06.5	38.1		114 35.9	50.7		261 19.9	58.9		Diphda	349 29.4	S 18 09.2			
05	306 45.9	293 46.3	40.0	53 09.5	38.2		129 38.4	50.7		276 22.1	59.0							
06	321 48.3	308 47.5 N	5 40.1	68 12.6 S	23 38.2		144 41.0 N	2 50.7		291 24.2 N	9 59.1		Dubhe	194 31.7	N 61 55.3			
07	336 50.8	323 48.7	40.2	83 15.6	38.3		159 43.5	50.8		306 26.4	59.2		Enith	278 55.0	N 28 35.1			
08	351 53.3	338 50.0	40.3	98 18.7	38.4		174 46.0	50.8		321 28.6	59.3		Eltanin	91 01.2	N 51 29.2			
09	6 55.7	353 51.2	40.4	113 21.7	38.5		189 48.5	50.8		336 30.8	59.4		Enif	34 19.8	N 9 43.8			
10	21 58.2	8 52.4	40.5	128 24.8	38.5		204 51.1	50.8		351 32.9	59.5		Fomalhaut	16 00.6	S 29 47.1			
11	37 00.7	23 53.6	40.6	143 27.8	38.6		219 53.6	50.8		6 35.1	59.6							
12	52 03.1	38 54.8 N	5 40.7	158 30.9 S	23 38.7		234 56.1 N	2 50.9		21 37.3 N	9 59.7		Gacrux	172 38.0	S 56 56.8			
13	67 05.6	53 56.0	40.8	173 33.9	38.8		249 58.7	50.9		36 39.5	59.8		Gienah	176 26.4	S 17 22.5			
14	82 08.0	68 57.2	40.9	188 37.0	38.9		265 01.2	50.9		51 41.6	9 59.9		Hadar	149 35.0	S 60 13.8			
15	97 10.5	83 58.4	41.0	203 40.1	38.9		280 03.7	50.9		66 43.8	10 00.0		Hamal	328 38.7	N 23 19.0			
16	112 13.0	98 59.5	41.1	218 43.1	39.0		295 06.3	50.9		81 46.0	00.1		Kaus Aust.	84 27.6	S 34 24.1			
17	127 15.4	114 00.7	41.2	233 46.2	39.1		310 08.8	50.9		96 48.2	00.2							
18	142 17.9	129 01.9 N	5 41.3	248 49.2 S	23 39.2		325 11.3 N	2 51.0		111 50.3 N	10 00.3		Kochab	137 16.8	N 74 16.8			
19	157 20.4	144 03.1	41.5	263 52.3	39.2		340 13.8	51.0		126 52.5	00.4		Markab	14 11.7	N 15 02.2			
20	172 22.8	159 04.3	41.6	278 55.4	39.3		355 16.4	51.0		141 54.7	00.5		Menkar	314 50.2	N 3 58.3			
21	187 25.3	174 05.5	41.7	293 58.4	39.4		10 18.9	51.0		156 56.8	00.6		Menkent	148 46.6	S 36 13.4			
22	202 27.8	189 06.6	41.8	309 01.5	39.5		25 21.4	51.0		171 59.0	00.7		Miaplacidus	221 47.3	S 69 35.7			
23	217 30.2	204 07.8	41.9	324 04.6	39.5		40 23.9	51.1		187 01.2	00.8							
15 00	232 32.7	219 09.0 N	5 42.1	339 07.7 S	23 39.6		55 26.5 N	2 51.1		202 03.4 N	10 00.9		Mirfak	309 28.8	N 49 45.2			
01	247 35.2	234 10.2	42.2	354 10.7	39.7		70 29.0	51.1		217 05.5	01.0		Nunki	76 39.3	S 26 20.3			
02	262 37.6	249 11.3	42.3	9 13.8	39.8		85 31.5	51.1		232 07.7	01.1		Peacock	54 11.2	S 56 50.0			
03	277 40.1	264 12.5	42.4	24 16.9	39.8		100 34.0	51.1		247 09.9	01.2		Pollux	244 08.5	N 28 06.3			
04	292 42.5	279 13.7	42.6	39 19.9	39.9		115 36.6	51.1		262 12.1	01.3		Procyon	245 34.7	N 5 18.4			
05	307 45.0	294 14.8	42.7	54 23.0	40.0		130 39.1	51.1		277 14.2	01.4							
06	322 47.5	309 16.0 N	5 42.8	69 26.1 S	23 40.0		145 41.6 N	2 51.2		292 16.4 N	10 01.5		Rasalhague	96 37.0	N 12 34.6			
07	337 49.9	324 17.1	42.9	84 29.2	40.1		160 44.1	51.2		307 18.6	01.6		Regulus	208 18.8	N 12 07.1			
08	352 52.4	339 18.3	43.1	99 32.3	40.2		175 46.7	51.2		322 20.8	01.7		Rigel	281 44.3	S 8 14.1			
09	7 54.9	354 19.5	43.2	114 35.3	40.3		190 49.2	51.2		337 22.9	01.8		Rigel Kent.	140 36.8	S 60 42.7			
10	22 57.3	9 20.6	43.3	129 38.4	40.3		205 51.7	51.2		352 25.1	01.9		Sabik	102 50.4	S 15 41.5			
11	37 59.8	24 21.8	43.5	144 41.5	40.4		220 54.2	51.2		7 27.3	02.0							
12	53 02.3	39 22.9 N	5 43.6	159 44.6 S	23 40.5		235 56.8 N	2 51.3		22 29.5 N	10 02.1		Schedar	350 19.3	N 56 22.0			
13	68 04.7	54 24.0	43.8	174 47.7	40.6		250 59.3	51.3		37 31.6	02.2		Shaula	97 06.8	S 37 05.1			
14	83 07.2	69 25.2	43.9	189 50.8	40.6		266 01.8	51.3		52 33.8	02.3		Sirius	259 03.3	S 16 40.4			
15	98 09.6	84 26.3	44.0	204 53.8	40.7		281 04.3	51.3		67 36.0	02.4		Spica	159 06.1	S 11 00.3			
16	113 12.1	99 27.5	44.2	219 56.9	40.8		296 06.9	51.3		82 38.2	02.5		Suhail	223 17.2	S 43 18.7			
17	128 14.6	114 28.6	44.3	235 00.0	40.8		311 09.4	51.3		97 40.3	02.6							
18	143 17.0	129 29.7 N	5 44.5	250 03.1 S	23 40.9		326 11.9 N	2 51.3		112 42.5 N	10 02.7		Vega	81 01.2	N 38 44.9			
19	158 19.5	144 30.9	44.6	265 06.2	41.0		341 14.4	51.4		127 44.7	02.8		Zuben'ubi	137 42.0	S 15 55.1			
20	173 22.0	159 32.0	44.8	280 09.3	41.1		356 16.9	51.4		142 46.9	02.9							
21	188 24.4	174 33.1	44.9	295 12.4	41.1		11 19.5	51.4		157 49.0	03.0							
22	203																	

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise						
		G.H.A.	Dec.	G.H.A.	φ	Dec.	d		H.P.	Naut.		Civil	13	14	15	16		
d	h	°	'	°	'	°	'	'	h	m	h	m	h	m	h	m	h	m
13	00	180 56.1	N18 17.2	218 45.8	14.8	N	6 26.4	15.0	56.3	N 72	□	□	□	02 02	02 13	02 19	□	□
	01	195 56.1	17.8	233 19.6	14.9		6 41.4	15.0	56.3	N 70	///	///	00 56	02 11	01 40	00 51	□	□
	02	210 56.1	18.4	247 53.5	14.9		6 56.4	14.9	56.3	68	///	///	01 54	02 19	01 57	01 26	00 09	
	03	225 56.1	19.1	262 27.4	14.8		7 11.3	14.9	56.3	66	///	///	02 27	02 26	02 10	01 50	01 18	
	04	240 56.1	19.7	277 01.2	14.9		7 26.2	14.8	56.2	64	///	01 17	02 51	02 32	02 22	02 10	01 54	
05	255 56.1	20.3	291 35.1	14.8		7 41.0	14.8	56.2	60	///	01 56	03 10	02 36	02 31	02 26	02 20	02 20	
06	270 56.1	N18 20.9	306 08.9	14.8	N	7 55.8	14.8	56.2	N 58	01 09	02 44	03 38	02 44	02 47	02 51	02 58		
07	285 56.1	21.5	320 42.7	14.8		8 10.6	14.7	56.2	56	01 45	03 00	03 49	02 48	02 54	03 01	03 12		
08	300 56.1	22.2	335 16.5	14.8		8 25.3	14.7	56.2	54	02 10	03 14	03 59	02 51	03 00	03 10	03 25		
09	315 56.1	22.8	349 50.3	14.7		8 40.0	14.6	56.1	52	02 29	03 26	04 08	02 54	03 05	03 18	03 36		
10	330 56.1	23.4	4 24.0	14.8		8 54.6	14.6	56.1	50	02 45	03 37	04 16	02 56	03 10	03 26	03 45		
11	345 56.1	24.0	18 57.8	14.7		9 09.2	14.5	56.1	45	03 15	03 58	04 32	03 02	03 20	03 41	04 06		
12	0 56.1	N18 24.6	33 31.5	14.7	N	9 23.7	14.5	56.1	N 40	03 38	04 15	04 46	03 07	03 29	03 54	04 23		
13	15 56.1	25.2	48 05.2	14.7		9 38.2	14.4	56.1	35	03 56	04 30	04 57	03 11	03 37	04 05	04 37		
14	30 56.1	25.9	62 38.9	14.6		9 52.6	14.4	56.0	30	04 10	04 41	05 07	03 14	03 43	04 15	04 50		
15	45 56.1	26.5	77 12.5	14.6		10 07.0	14.4	56.0	20	04 33	05 01	05 24	03 21	03 55	04 31	05 11		
16	60 56.1	27.1	91 46.1	14.7		10 21.4	14.2	56.0	N 10	04 51	05 17	05 39	03 26	04 05	04 46	05 30		
17	75 56.2	27.7	106 19.8	14.5		10 35.6	14.3	56.0	0	05 06	05 31	05 53	03 32	04 15	05 00	05 47		
18	90 56.2	N18 28.3	120 53.3	14.6	N	10 49.9	14.1	55.9	S 10	05 19	05 44	06 06	03 37	04 25	05 14	06 05		
19	105 56.2	28.9	135 26.9	14.5		11 04.0	14.1	55.9	20	05 31	05 57	06 20	03 43	04 35	05 29	06 24		
20	120 56.2	29.5	150 00.4	14.5		11 18.1	14.1	55.9	30	05 43	06 12	06 37	03 49	04 48	05 46	06 46		
21	135 56.2	30.1	164 33.9	14.5		11 32.2	14.0	55.9	35	05 49	06 19	06 46	03 53	04 55	05 57	06 59		
22	150 56.2	30.8	179 07.4	14.4		11 46.2	14.0	55.9	40	05 55	06 28	06 57	03 58	05 03	06 08	07 14		
23	165 56.2	31.4	193 40.8	14.4		12 00.2	13.8	55.8	45	06 02	06 38	07 10	04 03	05 12	06 22	07 32		
14	00	180 56.2	N18 32.0	208 14.2	14.4	N	12 14.0	13.9	55.8	S 50	06 10	06 49	07 25	04 09	05 24	06 39	07 54	
01	195 56.2	32.6	222 47.6	14.3		12 27.9	13.7	55.8	52	06 13	06 55	07 32	04 12	05 29	06 47	08 05		
02	210 56.2	33.2	237 20.9	14.3		12 41.6	13.7	55.8	54	06 17	07 00	07 40	04 15	05 35	06 56	08 17		
03	225 56.2	33.8	251 54.2	14.3		12 55.3	13.7	55.8	56	06 21	07 06	07 49	04 18	05 42	07 06	08 31		
04	240 56.2	34.4	266 27.5	14.2		13 09.0	13.5	55.7	58	06 25	07 13	07 59	04 22	05 49	07 18	08 47		
05	255 56.2	35.0	281 00.7	14.2		13 22.5	13.5	55.7	S 60	06 29	07 21	08 10	04 27	05 58	07 31	09 07		
06	270 56.2	N18 35.6	295 33.9	14.2	N	13 36.0	13.5	55.7		Lat.	Sun-set	Twilight		Moonset				
07	285 56.2	36.2	310 07.1	14.1		13 49.5	13.4	55.7				Civil	Naut.	13	14	15	16	
08	300 56.2	36.8	324 40.2	14.1		14 02.9	13.3	55.7		°	h m	h m	h m	h m	h m	h m	h m	
09	315 56.2	37.4	339 13.3	14.0		14 16.2	13.2	55.6	N 72	□	□	□	□	18 21	21 18	□	□	
10	330 56.2	38.0	353 46.3	14.0		14 29.4	13.2	55.6	N 70	23 08	///	///	///	18 02	20 24	□	□	
11	345 56.2	38.6	8 19.3	14.0		14 42.6	13.1	55.6	68	22 03	///	///	///	17 47	19 51	22 45	□	
12	0 56.2	N18 39.2	22 52.3	13.9	N	14 55.7	13.0	55.6	66	21 29	///	///	///	17 35	19 28	21 37	□	
13	15 56.2	39.8	37 25.2	13.9		15 08.7	13.0	55.6	64	21 04	22 42	///	///	17 25	19 09	21 02	23 17	
14	30 56.2	40.4	51 58.1	13.9		15 21.7	12.8	55.6	62	20 45	22 00	///	///	17 17	18 54	20 36	22 25	
15	45 56.2	41.0	66 31.0	13.8		15 34.5	12.8	55.5	60	20 29	21 32	///	///	17 10	18 42	20 17	21 53	
16	60 56.2	41.6	81 03.8	13.7		15 47.3	12.8	55.5	N 58	20 16	21 11	22 49	17 04	18 31	20 00	21 29		
17	75 56.2	42.2	95 36.5	13.7		16 00.1	12.6	55.5	56	20 04	20 54	22 11	16 58	18 22	19 47	21 10		
18	90 56.2	N18 42.8	110 09.2	13.7	N	16 12.7	12.6	55.5	54	19 54	20 40	21 45	16 53	18 14	19 35	20 55		
19	105 56.2	43.4	124 41.9	13.6		16 25.3	12.5	55.5	52	19 45	20 28	21 25	16 49	18 06	19 24	20 41		
20	120 56.2	44.0	139 14.5	13.6		16 37.8	12.4	55.4	50	19 38	20 17	21 09	16 45	18 00	19 15	20 29		
21	135 56.2	44.6	153 47.1	13.5		16 50.2	12.4	55.4	45	19 21	19 55	20 38	16 36	17 46	18 55	20 04		
22	150 56.2	45.2	168 19.6	13.5		17 02.6	12.2	55.4	N 40	19 07	19 38	20 16	16 29	17 34	18 40	19 44		
23	165 56.2	45.8	182 52.1	13.4		17 14.8	12.2	55.4	35	18 56	19 24	19 58	16 23	17 24	18 26	19 28		
15	00	180 56.2	N18 46.4	197 24.5	13.4	N	17 27.0	12.1	55.4	30	18 46	19 12	19 43	16 17	17 16	18 15	19 14	
01	195 56.1	47.0	211 56.9	13.3		17 39.1	12.0	55.4	20	18 28	18 52	19 20	16 08	17 01	17 55	18 50		
02	210 56.1	47.6	226 29.2	13.3		17 51.1	11.9	55.3	N 10	18 14	18 36	19 02	16 00	16 48	17 38	18 30		
03	225 56.1	48.2	241 01.5	13.2		18 03.0	11.9	55.3	0	18 00	18 22	18 47	15 52	16 36	17 22	18 11		
04	240 56.1	48.8	255 33.7	13.2		18 14.9	11.7	55.3	S 10	17 46	18 08	18 34	15 45	16 25	17 07	17 52		
05	255 56.1	49.4	270 05.9	13.1		18 26.6	11.7	55.3	20	17 32	17 55	18 22	15 37	16 12	16 50	17 31		
06	270 56.1	N18 50.0	284 38.0	13.1	N	18 38.3	11.6	55.3	30	17 15	17 41	18 10	15 28	15 58	16 31	17 08		
07	285 56.1	50.6	313 42.1	13.0		18 49.9	11.5	55.2	35	17 06	17 33	18 03	15 22	15 49	16 19	16 54		
08	300 56.1	51.2	328 14.1	12.9		19 12.8	11.3	55.2	40	16 55	17 24	17 57	15 16	15 40	16 07	16 38		
09	315 56.1	51.8	342 46.0	12.9		19 24.1	11.2	55.2	45	16 43	17 14	17 50	15 10	15 29	15 52	16 19		
10	330 56.1	52.4	357 17.9	12.8		19 35.3	11.1	55.2	S 50	16 27	17 03	17 42	15 01	15 16	15 33	15 56		
11	345 56.1	53.0	11 49.7	12.8	N	19 46.4	11.0	55.2	52	16 20	16 58	17 39	14 58	15 10	15 25	15 45		
12	0 56.1	N18 53.5	26 21.5	12.7		19 57.4	11.0	55.1	54	16 12	16 52	17 35	14 53	15 03	15 15	15 32		
13	15 56.1	54.1	40 53.2	12.7		20 08.4	10.8	55.1	56	16 03	16 45	17 31	14 49	14 55	15 04	15 17		
14	30 56.1	54.7	55 24.9	12.6		20 19.2	10.7	55.1	58	15 53	16 38	17 27	14 44	14 47	14 52	15 00		
15	45 56.1	55.3	69 56.5	12.5		20 29.9	10.7	55.1	S 60	15 41	16 31	17 22	14 38	14 37	14 38	14 40		
16	60 56.1	55.9	84 28.0	12.5		20 40.6	10.5	55.1		MOON								
17	75 56.0	56.5	98 59.5	12.4	N	20 51.1	10.5	55.1		Day	SUN		Mer. Pass.	Mer. Upper	Pass. Lower	Age	Phase	
18	90 56.0	N18 57.1	113 30.9	12.4		21 01.6	10.3	55.0			Eqn. of Time	12h						
19	105 56.0	58.2	128 02.3	12.4		21 11.9	10.2	55.0	13	m s	03 44	in s	h m	09 42	22 04	d		
20	120 56.0	58.8	142 33.7	12.2		21 22.1	10.2	55.0	14	03 45	03 45		11 56	10 26	22 48	28		
21	135 56.0	58.8	157 04.9	12.3		21 32.3	10.0	55.0	15	03 45	03 44		11 56	11 11	23 35	29		
22	150 56.0	18 59.4	171 36.2	12.1		21 42.3	9.9	55.0										
23	165 56.0	19 00.0																
		S.D. 15.8	d 0.6	S.D. 15.3	15.1	15.1	15.0											

G.M.T.		ARIES		VENUS -4.2		MARS -1.6		JUPITER -1.8		SATURN +0.6		STARS						
G.H.A.		G.H.A.		Dec.		G.H.A.		Dec.		G.H.A.		Dec.		Name	S.H.A.	Dec.		
d	h	°	'	°	'	°	'	°	'	°	'	°	'		°	'		
FRI DAY	16 00	233	31.8	219	36.5 N	5 45.4	340	21.7 S	23 41.3	56	27.0 N	2 51.4	202	55.6 N	10 03.3	Acamar	315 43.8 S 40 25.5	
	01	248	34.3	234	37.6	45.5	355	24.8	41.4	71	29.5	51.4	217	57.7	03.4	Achernar	335 51.7 S 57 23.3	
	02	263	36.7	249	38.7	45.7	10	27.9	41.5	86	32.1	51.5	232	59.9	03.5	Acrux	173 46.5 S 62 56.0	
	03	278	39.2	264	39.9	45.9	25	31.0	41.6	101	34.6	51.5	248	02.1	03.6	Adhara	255 39.0 S 28 55.8	
	04	293	41.7	279	41.0	46.0	40	34.1	41.6	116	37.1	51.5	263	04.3	03.7	Aldebaran	291 28.0 N 16 27.0	
	05	308	44.1	294	42.1	46.2	55	37.2	41.7	131	39.6	51.5	278	06.4	03.8			
	06	323	46.6	309	43.2 N	5 46.3	70	40.3 S	23 41.8	146	42.1 N	2 51.5	293	08.6 N	10 03.9	Alioth	166 49.1 N 56 07.0	
	07	338	49.1	324	44.3	46.5	85	43.4	41.8	161	44.6	51.5	308	10.8	04.0	Alkaid	153 24.4 N 49 28.7	
	08	353	51.5	339	45.4	46.7	100	46.6	41.9	176	47.2	51.5	323	13.0	04.1	Al Na'ir	28 25.3 S 47 06.7	
	09	8 54.0	354	46.5	46.8	115	49.7	42.0	191	49.7	51.5	338	15.1	04.2	Alnilam	276 20.5 S 1 13.1		
	10	23 56.5	9 47.6	47.0	130	52.8	42.1	206	52.2	51.6	353	17.3	04.3	Alphard	218 28.8 S 8 31.5			
	11	38 58.9	24 48.7	47.2	145	55.9	42.1	221	54.7	51.6	8	19.5	04.4					
	12	54 01.4	39 49.8 N	5 47.4	160	59.0 S	23 42.2	236	57.2 N	2 51.6	23	21.7 N	10 04.5	Alphecca	126 38.8 N 26 48.8			
	13	69 03.9	54 50.9	47.5	176	02.1	42.3	251	59.7	51.6	38	23.8	04.6	Alpheratz	358 18.3 N 28 55.1			
	14	84 06.3	69 52.0	47.7	191	05.2	42.3	267	02.3	51.6	53	26.0	04.7	Altair	62 40.5 N 8 46.9			
	15	99 08.8	84 53.1	47.9	206	08.4	42.4	282	04.8	51.6	68	28.2	04.8	Ankaa	353 48.5 S 42 28.2			
	16	114 11.2	99 54.2	48.1	221	11.5	42.5	297	07.3	51.6	83	30.4	04.9	Antares	113 06.8 S 26 22.1			
	17	129 13.7	114 55.3	48.2	236	14.6	42.5	312	09.8	51.6	98	32.5	05.0					
	18	144 16.2	129 56.3 N	5 48.4	251	17.7 S	23 42.6	327	12.3 N	2 51.6	113	34.7 N	10 05.1	Arcturus	146 25.7 N 19 20.4			
	19	159 18.6	144 57.4	48.6	266	20.8	42.7	342	14.8	51.7	128	36.9	05.2	Atria	108 38.1 S 68 58.5			
	20	174 21.1	159 58.5	48.8	281	24.0	42.7	357	17.4	51.7	143	39.1	05.3	Avior	234 32.1 S 59 24.8			
	21	189 23.6	174 59.6	49.0	296	27.1	42.8	12	19.9	51.7	158	41.3	05.4	Bellatrix	279 08.0 N 6 19.5			
	22	204 26.0	190 00.7	49.1	311	30.2	42.9	27	22.4	51.7	173	43.4	05.5	Betelgeuse	271 37.6 N 7 24.3			
23	219 28.5	205 01.7	49.3	326	33.4	43.0	42	24.9	51.7	188	45.6	05.6						
SATURDAY	17 00	234	31.0	220	02.8 N	5 49.5	341	36.5 S	23 43.0	57	27.4 N	2 51.7	203	47.8 N	10 05.7	Canopus	264 11.4 S 52 40.7	
	01	249	33.4	235	03.9	49.7	356	39.6	43.1	72	29.9	51.7	218	50.0	05.8	Capella	281 24.1 N 45 58.3	
	02	264	35.9	250	04.9	49.9	11	42.8	43.2	87	32.4	51.7	233	52.1	05.9	Deneb	49 54.2 N 45 09.8	
	03	279	38.4	265	06.0	50.1	26	45.9	43.2	102	34.9	51.7	248	54.3	06.0	Denebola	183 07.3 N 14 44.6	
	04	294	40.8	280	07.1	50.3	41	49.0	43.3	117	37.5	51.7	263	56.5	06.1	Diphda	349 29.4 S 18 09.2	
	05	309	43.3	295	08.1	50.5	56	52.2	43.4	132	40.0	51.8	278	58.7	06.2			
	06	324	45.7	310	09.2 N	5 50.7	71	55.3 S	23 43.4	147	42.5 N	2 51.8	294	00.8 N	10 06.3	Dubhe	194 31.8 N 61 55.3	
	07	339	48.2	325	10.3	50.9	86	58.4	43.5	162	45.0	51.8	309	03.0	06.4	Elmath	278 55.0 N 28 35.1	
	08	354	50.7	340	11.3	51.1	102	01.6	43.6	177	47.5	51.8	324	05.2	06.5	Eltanin	91 01.2 N 51 29.2	
	09	9 53.1	355	12.4	51.3	117	04.7	43.6	192	50.0	51.8	339	07.4	06.6	Enif	34 19.8 N 9 43.8		
	10	24 55.6	10 13.4	51.5	132	07.9	43.7	207	52.5	51.8	354	09.5	06.7	Fomalhaut	16 00.6 S 29 47.0			
	11	39 58.1	25 14.5	51.7	147	11.0	43.8	222	55.0	51.8	9	11.7	06.8					
	12	55 00.5	40 15.5 N	5 51.9	162	14.1 S	23 43.8	237	57.5 N	2 51.8	24	13.9 N	10 06.9	Gacrux	172 38.0 S 56 56.8			
	13	70 03.0	55 16.6	52.1	177	17.3	43.9	253	00.0	51.8	39	16.1	07.0	Gienah	176 26.4 S 17 22.5			
	14	85 05.5	70 17.6	52.3	192	20.4	44.0	268	02.5	51.8	54	18.3	07.1	Hadar	149 35.0 S 60 13.8			
	15	100 07.9	85 18.7	52.5	207	23.6	44.0	283	05.1	51.9	69	20.4	07.2	Hamal	328 38.7 N 23 19.0			
	16	115 10.4	100 19.7	52.7	222	26.7	44.1	298	07.6	51.9	84	22.6	07.3	Kaus Aust.	84 27.6 S 34 24.1			
	17	130 12.9	115 20.7	52.9	237	29.9	44.2	313	10.1	51.9	99	24.8	07.4					
	18	145 15.3	130 21.8 N	5 53.1	252	33.0 S	23 44.2	328	12.6 N	2 51.9	114	27.0 N	10 07.5	Kochab	137 16.8 N 74 16.8			
	19	160 17.8	145 22.8	53.3	267	36.2	44.3	343	15.1	51.9	129	29.1	07.6	Makrab	14 11.7 N 15 02.2			
	20	175 20.2	160 23.8	53.5	282	39.4	44.4	358	17.6	51.9	144	31.3	07.7	Markab	314 50.2 N 3 58.3			
	21	190 22.7	175 24.9	53.7	297	42.5	44.4	13	20.1	51.9	159	33.5	07.8	Menkent	148 46.6 S 36 13.4			
	22	205 25.2	190 25.9	54.0	312	45.7	44.5	28	22.6	51.9	174	35.7	07.9	Miaplacidus	221 47.4 S 69 35.7			
23	220 27.6	205 26.9	54.2	327	48.8	44.6	43	25.1	51.9	189	37.8	08.0						
SUNDAY	18 00	235	30.1	220	28.0 N	5 54.4	342	52.0 S	23 44.6	58	27.6 N	2 51.9	204	40.0 N	10 08.1	Mirfak	309 28.7 N 49 45.2	
	01	250	32.6	235	29.0	54.6	357	55.1	44.7	73	30.1	51.9	219	42.2	08.2	Nunki	76 39.2 S 26 20.3	
	02	265	35.0	250	30.0	54.8	12	58.3	44.8	88	32.6	51.9	234	44.4	08.3	Peacock	54 11.1 S 56 50.0	
	03	280	37.5	265	31.0	55.1	28	01.5	44.8	103	35.1	51.9	249	46.5	08.4	Pollux	244 08.5 N 28 06.3	
	04	295	40.0	280	32.0	55.3	43	04.6	44.9	118	37.6	52.0	264	48.7	08.5	Procyon	245 34.7 N 5 18.4	
	05	310	42.4	295	33.0	55.5	58	07.8	44.9	133	40.1	52.0	279	50.9	08.6			
	06	325	44.9	310	34.1 N	5 55.7	73	11.0 S	23 45.0	148	42.6 N	2 52.0	294	53.1 N	10 08.7	Rasalhague	96 37.0 N 12 34.6	
	07	340	47.4	325	35.1	56.0	88	14.1	45.1	163	45.1	52.0	309	55.3	08.8	Regulus	208 18.8 N 12 07.1	
	08	355	49.8	340	36.1	56.2	103	17.3	45.1	178	47.6	52.0	324	57.4	08.9	Rigel	281 44.3 S 8 14.1	
	09	10 52.3	355	37.1	56.4	118	20.5	45.2	193	50.2	52.0	339	59.6	09.0	Rigil Kent.	140 36.8 S 60 42.7		
	10	25 54.7	10 38.1	56.6	133	23.6	45.3	208	52.7	52.0	355	01.8	09.1	Sabik	102 50.4 S 15 41.5			
	11	40 57.2	25 39.1	56.9	148	26.8	45.3	223	55.2	52.0	10	04.0	09.2					
	12	55 59.7	40 40.1 N	5 57.1	163	30.0 S	23 45.4	238	57.7 N	2 52.0	25	06.1 N	10 09.3	Schedar	350 19.3 N 56 22.0			
	13	71 02.1	55 41.1	57.3	178	33.2	45.5	254	00.2	52.0	40	08.3	09.4	Shaula	97 06.8 S 37 05.1			
	14	86 04.6	70 42.1	57.6	193	36.3	45.5	269	02.7	52.0	55	10.5	09.5	Sirius	259 03.3 S 16 40.4			
	15	101 07.1	85 43.1	57.8	208	39.5	45.6	284	05.2	52.0	70	12.7	09.6	Spica	159 06.1 S 11 00.3			
	16	116 09.5	100 44.1	58.1	223	42.7	45.6	299	07.7	52.0	85	14.9	09.7	Suhail	223 17.2 S 43 18.7			
	17	131 12.0	115 45.1	58.3	238	45.9	45.7	314	10.2	52.0	100	17.0	09.8					
	18	146 14.5	130 46.1 N	5 58.5	253	49.0 S	23 45.8	329	12.7 N	2 52.0	115	19.2 N	10 09.9	Vega	81 01.2 N 38 44.9			
	19	161 16.9	145 47.1	58.8	268	52.2	45.8	344	15.2	52.0	130	21.4	10.0	Zuben'ubi	137 42.0 S 15 55.1			
	20	176 19.4	160 48.0	59.0	283	55.4	45.9	359	17.7	52.0	145	23.6	10.1		S.H.A.	Mer. Pass.		
	21	191 21.8	175 49.0	59.3	298	58.6	46.0	14	20.2	52.0	160	25.7	10.2		°	h		
	22	206 24.3	190 50.0	59.5	314	01.8	46.0	29	22.7	52.0	175	27.9	10.3	Venus	345 31.8	9 19		
23	221 26.8	205 51.0	59.8	329	05.0	46.1	44	25.2	52.1	190	30.1	10.4	Mars	107 05.5	1 13			
Mer. Pass.		8 20.6	v	1.0	d	0.2	v	3.1	d	0.1	v	2.5	d	0.0	v	2.2	d	0.1

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise							
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.		Naut.	Civil		16	17	18	19				
d	h	°	'	°	'	°	'	°	'	°	'	h	m	h	m	h	m	h	m	
16	00	180	56.0	N 19	00.6	186	07.3	12.2	N 21	52.2	9.9	55.0	N 72	□	□	□	□	□	□	
	01	195	56.0		01.2	200	38.5	12.0	22	02.1	9.7	55.0	N 70	□	□	□	□	□	□	
	02	210	56.0		01.7	215	09.5	12.0	22	11.8	9.6	54.9	68	///	///	01 37	00 09	□	□	
	03	225	56.0	..	02.3	229	40.5	12.0	22	21.4	9.5	54.9	66	///	///	02 15	01 18	□	□	
	04	240	55.9		02.9	244	11.5	11.9	22	30.9	9.4	54.9	64	///	00 54	02 42	01 54	01 20	□	
	05	255	55.9		03.5	258	42.4	11.8	22	40.3	9.3	54.9	62	///	01 44	03 02	02 20	02 13	02 00	
	06												60	///	02 13	03 18	02 41	02 45	02 58	03 31
	07	270	55.9	N 19	04.1	273	13.2	11.8	N 22	49.6	9.2	54.9	N 58	00 49	02 36	03 32	02 58	03 09	03 31	04 11
	08	285	55.9		04.6	287	44.0	11.7	22	58.8	9.1	54.9	56	01 34	02 54	03 44	03 12	03 29	03 56	04 38
	09	300	55.9		05.2	302	14.7	11.7	23	07.9	8.9	54.8	54	02 01	03 08	03 54	03 25	03 45	04 15	05 00
FRI	10	315	55.9	..	05.8	316	45.4	11.7	23	16.8	8.9	54.8	52	02 22	03 21	04 04	03 36	03 59	04 32	05 17
	11	330	55.9		06.4	331	16.1	11.5	23	25.7	8.7	54.8	50	02 39	03 32	04 12	03 45	04 11	04 47	05 33
		345	55.9		07.0	345	46.6	11.5	23	34.4	8.6	54.8	45	03 11	03 55	04 29	04 06	04 37	05 16	06 03
	12	0 55.8	N 19	07.5	0 17.1	11.5	N 23	43.0	8.6	54.8	N 40	03 34	04 12	04 43	04 23	04 57	05 39	06 27		
	13	15	55.8		08.1	14	47.6	11.4	23	51.6	8.3	54.8	35	03 53	04 27	04 55	04 37	05 14	05 58	06 47
	14	30	55.8		08.7	29	18.0	11.4	23	59.9	8.3	54.8	30	04 08	04 39	05 06	04 50	05 29	06 14	07 04
	15	45	55.8	..	09.3	43	48.4	11.3	24	08.2	8.2	54.7	20	04 32	05 00	05 23	05 11	05 54	06 42	07 32
	16	60	55.8		09.8	58	18.7	11.3	24	16.4	8.0	54.7	N 10	04 50	05 16	05 39	05 30	06 16	07 05	07 57
	17	75	55.8		10.4	72	49.0	11.2	24	24.4	7.9	54.7	0	05 05	05 31	05 53	05 47	06 36	07 28	08 19
	18	90	55.8	N 19	11.0	87	19.2	11.1	N 24	32.3	7.9	54.7	S 10	05 19	05 45	06 07	06 05	06 57	07 50	08 42
SAT	19	105	55.7		11.5	101	49.3	11.2	24	40.2	7.6	54.7	20	05 32	05 58	06 22	06 24	07 19	08 14	09 07
	20	120	55.7		12.1	116	19.5	11.0	24	47.8	7.6	54.7	30	05 44	06 13	06 39	06 46	07 45	08 42	09 35
	21	135	55.7	..	12.7	130	49.5	11.0	24	55.4	7.4	54.7	35	05 51	06 21	06 49	06 59	08 00	08 58	09 52
	22	150	55.7		13.3	145	19.5	11.0	25	02.8	7.4	54.6	40	05 58	06 30	07 00	07 14	08 18	09 18	10 12
	23	165	55.7		13.8	159	49.5	10.9	25	10.2	7.2	54.6	45	06 05	06 41	07 13	07 32	08 39	09 41	10 36
	00	180	55.7	N 19	14.4	174	19.4	10.9	N 25	17.4	7.0	54.6	S 50	06 13	06 53	07 29	07 54	09 06	10 12	11 07
	01	195	55.7		15.0	188	49.3	10.8	25	24.4	7.0	54.6	52	06 17	06 59	07 37	08 05	09 19	10 27	11 22
	02	210	55.6		15.5	203	19.1	10.8	25	31.4	6.8	54.6	54	06 21	07 05	07 45	08 17	09 35	10 44	11 40
	03	225	55.6	..	16.1	217	48.9	10.7	25	38.2	6.7	54.6	56	06 25	07 11	07 54	08 31	09 53	11 06	12 02
	04	240	55.6		16.7	232	18.6	10.7	25	44.9	6.6	54.6	58	06 30	07 19	08 05	08 47	10 15	11 33	12 30
SUN	05	255	55.6		17.2	246	48.3	10.6	25	51.5	6.5	54.5	S 60	06 35	07 27	08 17	09 07	10 44	12 12	13 10
	06	270	55.6	N 19	17.8	261	17.9	10.6	N 25	58.0	6.3	54.5								
	07	285	55.6		18.4	275	47.5	10.6	26	04.3	6.2	54.5	Lat.	Sun-set	Twilight		Moonset			
	08	300	55.5		18.9	290	17.1	10.5	26	10.5	6.0	54.5			Civil	Naut.	16	17	18	19
	09	315	55.5	..	19.5	304	46.6	10.4	26	16.5	6.0	54.5	°	h m	h m	h m	h m	h m	h m	h m
	10	330	55.5		20.1	319	16.0	10.5	26	22.5	5.8	54.5	N 72	□	□	□	□	□	□	□
	11	345	55.5		20.6	333	45.5	10.4	26	28.3	5.7	54.5	N 70	□	□	□	□	□	□	□
	12	0 55.5	N 19	21.2	348	14.9	10.3	N 26	34.0	5.5	54.5	N 70	□	□	□	□	□	□	□	□
	13	15	55.4		21.7	2 44.2	10.3	26	39.5	5.4	54.4	68	22 21	///	///	///	□	□	□	□
	14	30	55.4		22.3	17 13.5	10.3	26	44.9	5.3	54.4	66	21 41	///	///	///	□	□	□	□
MON	15	45	55.4	..	22.9	31 42.8	10.2	26	50.2	5.2	54.4	64	21 14	23 07	///	///	23 17	□	□	□
	16	60	55.4		23.4	46 12.0	10.2	26	55.4	5.0	54.4	62	20 53	22 13	///	///	22 25	24 24	00 24	□
	17	75	55.4		24.0	60 41.2	10.2	27	00.4	4.9	54.4	60	20 36	21 42	///	///	21 53	23 26	24 41	00 41
	18	90	55.3	N 19	24.5	75 10.4	10.2	N 27	05.3	4.7	54.4	N 58	20 22	21 19	23 12	21 29	22 53	24 01	00 01	
	19	105	55.3		25.1	89 39.6	10.1	27	10.0	4.7	54.4	56	20 10	21 01	22 23	21 10	22 29	23 34	24 20	
	20	120	55.3		25.7	104 08.7	10.0	27	14.7	4.5	54.4	54	19 59	20 46	21 54	20 55	22 09	23 12	24 00	
	21	135	55.3	..	26.2	118 37.7	10.1	27	19.2	4.3	54.4	52	19 50	20 33	21 33	20 41	21 52	22 54	23 42	
	22	150	55.3		26.8	133 06.8	10.0	27	23.5	4.2	54.3	50	19 42	20 22	21 15	20 29	21 38	22 39	23 28	
	23	165	55.2		27.3	147 35.8	10.0	27	27.7	4.1	54.3	45	19 24	19 59	20 43	20 04	21 10	22 08	22 58	
	TUE	00	180	55.2	N 19	27.9	162 04.8	10.0	N 27	31.8	4.0	54.3	N 40	19 10	19 41	20 19	19 45	20 47	21 44	22 35
01		195	55.2		28.4	176 33.8	9.9	27	35.8	3.8	54.3	35	18 58	19 26	20 01	19 28	20 29	21 25	22 15	
02		210	55.2		29.0	191 02.7	9.9	27	39.6	3.6	54.3	30	18 47	19 14	19 45	19 14	20 13	21 08	21 59	
03		225	55.2	..	29.5	205 31.6	9.9	27	43.2	3.6	54.3	20	18 30	18 53	19 21	18 50	19 46	20 40	21 31	
04		240	55.1		30.1	220 00.5	9.9	27	46.8	3.4	54.3	N 10	18 14	18 37	19 03	18 30	19 23	20 15	21 07	
05		255	55.1		30.7	234 29.4	9.8	27	50.2	3.2	54.3	0	18 00	18 22	18 47	18 11	19 01	19 53	20 44	
06		270	55.1	N 19	31.2	248 58.2	9.8	N 27	53.4	3.2	54.3	S 10	17 46	18 08	18 34	17 52	18 39	19 30	20 22	
07		285	55.1		31.8	263 27.0	9.7	27	56.6	3.0	54.3	20	17 31	17 54	18 21	17 31	18 16	19 06	19 58	
08		300	55.0		32.3	277 55.9	9.7	27	59.6	2.8	54.3	30	17 14	17 39	18 08	17 08	17 50	18 37	19 29	
09		315	55.0	..	32.9	292 24.6	9.8	28	02.4	2.7	54.2	35	17 04	17 31	18 01	16 54	17 34	18 20	19 13	
WED	10	330	55.0		33.4	306 53.4	9.8	28	05.1	2.6	54.2	40	16 53	17 22	17 55	16 38	17 16	18 01	18 53	
	11	345	55.0		34.0	321 22.2	9.7	28	07.7	2.4	54.2	45	16 39	17 11	17 47	16 19	16 54	17 37	18 29	
	12	0 54.9	N 19	34.5	335 50.9	9														

G.M.T.	ARIES			VENUS -4.2			MARS -1.7			JUPITER -1.8			SATURN +0.7			STARS		
	G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.		
d h	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /		o /	o /		
19 00	236 29.2	220 52.0 N	6 00.0	344 08.1	S 23 46.1	59 27.7 N	2 52.1	205 32.3 N	10 5	10.5	205 32.3 N	10 5	10.5	Acamar	315 43.8	S 40 25.5		
01	251 31.7	235 52.9	00.3	359 11.3	46.2	74 30.2	52.1	220 34.5	10.6	10.6	220 34.5	10.6	10.6	Achernar	335 51.6	S 57 23.3		
02	266 34.2	250 53.9	00.5	14 14.5	46.3	89 32.7	52.1	235 36.6	10.7	10.7	235 36.6	10.7	10.7	Acrux	173 46.6	S 62 56.1		
03	281 36.6	265 54.9	00.8	29 17.7	46.3	104 35.2	52.1	250 38.8	10.8	10.8	250 38.8	10.8	10.8	Adhara	255 39.0	S 28 55.8		
04	296 39.1	280 55.9	01.0	44 20.9	46.4	119 37.6	52.1	265 41.0	10.9	10.9	265 41.0	10.9	10.9	Aldebaran	291 28.0	N 16 27.0		
05	311 41.6	295 56.8	01.3	59 24.1	46.4	134 40.1	52.1	280 43.2	11.0	11.0	280 43.2	11.0	11.0					
06	326 44.0	310 57.8 N	6 01.5	74 27.3	S 23 46.5	149 42.6 N	2 52.1	295 45.4 N	10 11.1	11.1	295 45.4 N	10 11.1	11.1	Alioth	166 49.1	N 56 07.7		
07	341 46.5	325 58.8	01.8	89 30.5	46.6	164 45.1	52.1	310 47.5	11.2	11.2	310 47.5	11.2	11.2	Alkaid	153 24.4	N 49 28.0		
08	356 49.0	340 59.7	02.0	104 33.7	46.6	179 47.6	52.1	325 49.7	11.3	11.3	325 49.7	11.3	11.3	Al Na'ir	28 25.2	S 47 06.5		
09	11 51.4	356 00.7	02.3	119 36.9	46.7	194 50.1	52.1	340 51.9	11.4	11.4	340 51.9	11.4	11.4	Alnilam	276 20.4	S 1 13.1		
10	26 53.9	11 01.7	02.6	134 40.1	46.7	209 52.6	52.1	355 54.1	11.5	11.5	355 54.1	11.5	11.5	Alphard	218 28.8	S 8 31.5		
11	41 56.3	26 02.6	02.8	149 43.3	46.8	224 55.1	52.1	10 56.3	11.6	11.6	10 56.3	11.6	11.6					
12	56 58.8	41 03.6 N	6 03.1	164 46.5	S 23 46.9	239 57.6 N	2 52.1	25 58.4 N	10 11.7	11.7	25 58.4 N	10 11.7	11.7	Alphecca	126 38.8	N 26 48.8		
13	72 01.3	56 04.5	03.3	179 49.7	46.9	255 00.1	52.1	41 00.6	11.8	11.8	41 00.6	11.8	11.8	Alpheratz	358 18.3	N 28 55.1		
14	87 03.7	71 05.5	03.6	194 52.9	47.0	270 02.6	52.1	56 02.8	11.9	11.9	56 02.8	11.9	11.9	Altair	62 40.5	N 8 46.9		
15	102 06.2	86 06.4	03.9	209 56.1	47.0	285 05.1	52.1	71 05.0	12.0	12.0	71 05.0	12.0	12.0	Ankaa	353 48.5	S 42 28.2		
16	117 08.7	101 07.4	04.1	224 59.3	47.1	300 07.6	52.1	86 07.1	12.1	12.1	86 07.1	12.1	12.1	Antares	113 06.8	S 26 22.1		
17	132 11.1	116 08.3	04.4	240 02.5	47.2	315 10.1	52.1	101 09.3	12.2	12.2	101 09.3	12.2	12.2					
18	147 13.6	131 09.3 N	6 04.7	255 05.7	S 23 47.2	330 12.6 N	2 52.1	116 11.5 N	10 12.3	12.3	116 11.5 N	10 12.3	12.3	Arcturus	146 25.7	N 19 20.4		
19	162 16.1	146 10.2	05.0	270 08.9	47.3	345 15.1	52.1	131 13.7	12.4	12.4	131 13.7	12.4	12.4	Atria	108 38.1	S 68 58.5		
20	177 18.5	161 11.2	05.2	285 12.1	47.3	0 17.6	52.1	146 15.9	12.5	12.5	146 15.9	12.5	12.5	Avior	234 32.1	S 59 24.8		
21	192 21.0	176 12.1	05.5	300 15.3	47.4	15 20.1	52.1	161 18.0	12.6	12.6	161 18.0	12.6	12.6	Bellatrix	279 08.0	N 6 19.5		
22	207 23.5	191 13.1	05.8	315 18.5	47.5	30 22.6	52.1	176 20.2	12.6	12.6	176 20.2	12.6	12.6	Betelgeuse	271 37.6	N 7 24.3		
23	222 25.9	206 14.0	06.0	330 21.7	47.5	45 25.0	52.1	191 22.4	12.7	12.7	191 22.4	12.7	12.7					
20 00	237 28.4	221 14.9 N	6 06.3	345 25.0	S 23 47.6	60 27.5 N	2 52.1	206 24.6 N	10 12.8	12.8	206 24.6 N	10 12.8	12.8	Canopus	264 11.4	S 52 40.7		
01	252 30.8	236 15.9	06.6	0 28.2	47.6	75 30.0	52.1	221 26.8	12.9	12.9	221 26.8	12.9	12.9	Capella	281 24.1	N 45 58.3		
02	267 33.3	251 16.8	06.9	15 31.4	47.7	90 32.5	52.1	236 28.9	13.0	13.0	236 28.9	13.0	13.0	Deneb	49 54.1	N 45 09.8		
03	282 35.8	266 17.7	07.2	30 34.6	47.7	105 35.0	52.1	251 31.1	13.1	13.1	251 31.1	13.1	13.1	Denebola	183 07.3	N 14 44.6		
04	297 38.2	281 18.7	07.4	45 37.8	47.8	120 37.5	52.1	266 33.3	13.2	13.2	266 33.3	13.2	13.2	Diphda	349 29.4	S 18 09.2		
05	312 40.7	296 19.6	07.7	60 41.0	47.9	135 40.0	52.1	281 35.5	13.3	13.3	281 35.5	13.3	13.3					
06	327 43.2	311 20.5 N	6 08.0	75 44.3	S 23 47.9	150 42.5 N	2 52.1	296 37.7 N	10 13.4	13.4	296 37.7 N	10 13.4	13.4	Dubhe	194 31.8	N 61 55.3		
07	342 45.6	326 21.4	08.3	90 47.5	48.0	165 45.0	52.1	311 39.8	13.5	13.5	311 39.8	13.5	13.5	Elnath	278 55.0	N 28 35.1		
08	357 48.1	341 22.4	08.6	105 50.7	48.0	180 47.5	52.1	326 42.0	13.6	13.6	326 42.0	13.6	13.6	Eltanin	91 01.1	N 51 29.2		
09	12 50.6	356 23.3	08.9	120 53.9	48.1	195 50.0	52.1	341 44.2	13.7	13.7	341 44.2	13.7	13.7	Enif	34 19.8	N 9 43.8		
10	27 53.0	11 24.2	09.2	135 57.1	48.1	210 52.4	52.1	356 46.4	13.8	13.8	356 46.4	13.8	13.8	Fomalhaut	16 00.6	S 29 47.0		
11	42 55.5	26 25.1	09.4	151 00.4	48.2	225 54.9	52.1	11 48.6	13.9	13.9	11 48.6	13.9	13.9					
12	57 58.0	41 26.0 N	6 09.7	166 03.6	S 23 48.2	240 57.4 N	2 52.1	26 50.7 N	10 14.0	14.0	26 50.7 N	10 14.0	14.0	Gacrux	172 38.0	S 56 56.8		
13	73 00.4	56 26.9	10.0	181 06.8	48.3	255 59.9	52.1	41 52.9	14.1	14.1	41 52.9	14.1	14.1	Gienah	176 26.4	S 17 22.5		
14	88 02.9	71 27.8	10.3	196 10.0	48.4	271 02.4	52.1	56 55.1	14.2	14.2	56 55.1	14.2	14.2	Hadar	149 35.0	S 60 13.8		
15	103 05.3	86 28.8	10.6	211 13.3	48.4	286 04.9	52.1	71 57.3	14.3	14.3	71 57.3	14.3	14.3	Hamal	328 38.7	N 23 19.0		
16	118 07.8	101 29.7	10.9	226 16.5	48.5	301 07.4	52.1	86 59.5	14.4	14.4	86 59.5	14.4	14.4	Kaus Aust.	84 27.6	S 34 24.1		
17	133 10.3	116 30.6	11.2	241 19.7	48.5	316 09.8	52.1	102 01.6	14.5	14.5	102 01.6	14.5	14.5					
18	148 12.7	131 31.5 N	6 11.5	256 23.0	S 23 48.6	331 12.3 N	2 52.1	117 03.8 N	10 14.6	14.6	117 03.8 N	10 14.6	14.6	Kochab	137 16.8	N 74 16.8		
19	163 15.2	146 32.4	11.8	271 26.2	48.6	346 14.8	52.1	132 06.0	14.7	14.7	132 06.0	14.7	14.7	Markab	14 11.6	N 15 02.2		
20	178 17.7	161 33.3	12.1	286 29.4	48.7	1 17.3	52.1	147 08.2	14.8	14.8	147 08.2	14.8	14.8	Menkar	314 50.2	N 3 58.3		
21	193 20.1	176 34.2	12.4	301 32.7	48.7	16 19.8	52.1	162 10.4	14.9	14.9	162 10.4	14.9	14.9	Menkent	148 46.6	S 36 13.4		
22	208 22.6	191 35.1	12.7	316 35.9	48.8	31 22.3	52.1	177 12.5	15.0	15.0	177 12.5	15.0	15.0	Miaplacidus	221 47.4	S 69 35.7		
23	223 25.1	206 36.0	13.0	331 39.1	48.9	46 24.8	52.1	192 14.7	15.1	15.1	192 14.7	15.1	15.1					
21 00	238 27.5	221 36.9 N	6 13.3	346 42.4	S 23 48.9	61 27.2 N	2 52.1	207 16.9 N	10 15.2	15.2	207 16.9 N	10 15.2	15.2	Mirfak	309 28.7	N 49 45.2		
01	253 30.0	236 37.8	13.6	1 45.6	49.0	76 29.7	52.1	222 19.1	15.3	15.3	222 19.1	15.3	15.3	Nunki	76 39.2	S 26 20.3		
02	268 32.5	251 38.6	13.9	16 48.9	49.0	91 32.2	52.1	237 21.3	15.4	15.4	237 21.3	15.4	15.4	Peacock	54 11.1	S 56 50.0		
03	283 34.9	266 39.5	14.2	31 52.1	49.1	106 34.7	52.1	252 23.5	15.5	15.5	252 23.5	15.5	15.5	Pollux	244 08.5	N 28 06.3		
04	298 37.4	281 40.4	14.5	46 55.3	49.1	121 37.2	52.1	267 25.6	15.6	15.6	267 25.6	15.6	15.6	Procyon	245 34.7	N 5 18.4		
05	313 39.8	296 41.3	14.8	61 58.6	49.2	136 39.7	52.1	282 27.8	15.7	15.7	282 27.8	15.7	15.7					
06	328 42.3	311 42.2 N	6 15.2	77 01.8	S 23 49.2	151 42.1 N	2 52.1	297 30.0 N	10 15.8	15.8	297 30.0 N	10 15.8	15.8	Rasalhague	96 37.0	N 12 34.6		
07	343 44.8	326 43.1	15.5	92 05.1	49.3	166 44.6	52.1	312 32.2	15.9	15.9	312 32.2	15.9	15.9	Regulus	208 18.8	N 12 07.1		
08	358 47.2	341 43.9	15.8	107 08.3	49.3	181 47.1	52.1	327 34.4	16.0	16.0	327 34.4	16.0	16.0	Rigel	281 44.3	S 8 14.1		
09	13 49.7	356 44.8	16.1	122 11.6	49.4	196 49.6	52.1	342 36.5	16.1	16.1	342 36.5	16.1	16.1	Rigel Kent.	140 36.8	S 60 42.7		
10	28 52.2	11 45.7	16.4	137 14.8	49.4	211 52.1	52.1	357 38.7	16.2	16.2	357 38.7	16.2	16.2	Sabik	102 50.4	S 15 41.5		
11	43 54.6	26 46.6	16.7	152 18.1	49.5	226 54.6	52.1	12 40.9	16.3	16.3	12 40.9	16.3	16.3					
12	58 57.1	41 47.5 N	6 17.0	167 21.3	S 23 49.5	241 57.0 N	2 52.1	27 43.1 N	10 16.3	16.3	27 43.1 N	10 16.3	16.3	Schedar	350 19.2	N 56 22.0		
13	73 59.6	56 48.3	17.4	182 24.6	49.6	256 59.5	52.1	42 45.3	16.4	16.4	42 45.3	16.4	16.4	Shaula	97 06.7	S 37 05.1		
14	89 02.0	71 49.2	17.7	197 27.8	49.6	272 02.0	52.1	57 47.4	16.5	16.5	57 47.4	16.5	16.5	Sirius	259 03.3	S 16 40.4		
15	104 04.5	86 50.1	18.0	212 31.1	49.7	287 04.5	52.1	72 49.6	16.6	16.6	72 49.6	16.6						

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise								
		G.H.A.	Dec.	G.H.A.	φ	Dec.	d		H.P.	Naut.		Civil	19	20	21	22				
d	h	°	'	°	'	°	'	°	'	h	m	h	m	h	m	h	m			
19	00	180	54-6	N 19	41-1	149	35-2	9-7	N 28	28-5	0-6	54-1	N 72	□	□	□	□			
	01	195	54-6		41-6	164	03-9	9-7	28	29-1	0-5	54-1	N 70	□	□	□	□			
	02	210	54-6		42-1	178	32-6	9-7	28	29-6	0-3	54-1	68	///	///	01 18	□			
	03	225	54-6	..	42-7	193	01-3	9-7	28	29-9	0-2	54-1	66	///	///	02 03	□			
	04	240	54-5		43-2	207	30-0	9-7	28	30-1	0-1	54-1	64	///	00 18	02 32	□			
20	05	255	54-5		43-8	221	58-7	9-7	28	30-2	0-1	54-1	62	///	01 30	02 54	□			
	06	270	54-5	N 19	44-3	236	27-4	9-7	N 28	30-1	0-2	54-1	60	///	02 04	03 12	03 31			
	07	285	54-4		44-8	250	56-1	9-8	28	29-9	0-4	54-1	N 58	00 16	02 28	03 26	04 11			
	08	300	54-4		45-4	265	24-9	9-7	28	29-5	0-5	54-1	56	01 21	02 47	03 39	04 38			
	09	315	54-4	..	45-9	279	53-6	9-8	28	29-0	0-6	54-1	54	01 53	03 03	03 50	05 00			
21	10	330	54-3		46-4	294	22-4	9-7	28	28-4	0-8	54-1	52	02 15	03 16	03 59	05 17			
	11	345	54-3		47-0	308	51-1	9-8	28	27-6	0-9	54-1	50	02 33	03 28	04 08	05 33			
	12	0	54-3	N 19	47-5	323	19-9	9-8	N 28	26-7	1-0	54-1	45	03 07	03 51	04 26	06 03			
	13	15	54-3		48-0	337	48-7	9-9	28	25-7	1-2	54-1	N 40	03 31	04 10	04 41	06 27			
	14	30	54-2		48-6	352	17-6	9-8	28	24-5	1-3	54-1	35	03 50	04 25	04 53	06 47			
22	15	45	54-2	..	49-1	6	46-4	9-9	28	23-2	1-5	54-1	30	04 06	04 37	05 04	07 04			
	16	60	54-2		49-6	21	15-3	9-9	28	21-7	1-6	54-1	20	04 30	04 58	05 22	07 32			
	17	75	54-1		50-2	35	44-2	9-9	28	20-1	1-7	54-1	N 10	04 49	05 16	05 38	07 57			
	18	90	54-1	N 19	50-7	50	13-1	9-9	N 28	18-4	1-9	54-1	0	05 05	05 31	05 53	08 19			
	19	105	54-1		51-2	64	42-0	10-0	28	16-5	2-0	54-1	S 10	05 19	05 45	06 08	08 42			
23	20	120	54-0		51-8	79	11-0	10-0	28	14-5	2-2	54-1	20	05 33	06 00	06 23	09 07			
	21	135	54-0	..	52-3	93	40-0	10-0	28	12-3	2-2	54-1	30	05 46	06 15	06 41	09 35			
	22	150	54-0		52-8	108	09-0	10-1	28	10-1	2-4	54-0	35	05 53	06 24	06 51	09 52			
	23	165	53-9		53-4	122	38-1	10-1	28	07-7	2-6	54-0	40	06 00	06 33	07 03	10 12			
													45	06 08	06 44	07 16	10 36			
24	00	180	53-9	N 19	53-9	137	07-2	10-1	N 28	05-1	2-7	54-0	S 50	06 17	06 57	07 33	11 07			
	01	195	53-9		54-4	151	36-3	10-1	28	02-4	2-8	54-0	52	06 21	07 02	07 41	11 22			
	02	210	53-8		54-9	166	05-4	10-2	27	59-6	3-0	54-0	54	06 25	07 09	07 50	11 40			
	03	225	53-8	..	55-5	180	34-6	10-2	27	56-6	3-0	54-0	56	06 29	07 16	07 59	12 02			
	04	240	53-8		56-0	195	03-8	10-3	27	53-6	3-3	54-0	58	06 34	07 24	08 11	12 30			
25	05	255	53-7		56-5	209	33-1	10-3	27	50-3	3-3	54-0	S 60	06 39	07 32	08 23	13 10			
	06	270	53-7	N 19	57-0	224	02-4	10-3	N 27	47-0	3-5	54-0	Lat.				Sun-set	Twilight	Moonset	
	07	285	53-7		57-6	238	31-7	10-3	27	43-5	3-6	54-0								
	08	300	53-6		58-1	253	01-0	10-4	27	39-9	3-7	54-0								
	09	315	53-6	..	58-6	267	30-4	10-5	27	36-2	3-9	54-0								
26	10	330	53-6		59-1	281	59-9	10-5	27	32-3	4-0	54-0								
	11	345	53-5	19	59-6	296	29-4	10-5	27	28-3	4-2	54-0								
	12	0	53-5	N 20	00-2	310	58-9	10-6	N 27	24-1	4-2	54-0	N 72	□	□	□	□	□	□	
	13	15	53-5		00-7	325	28-5	10-6	27	19-9	4-4	54-0	N 70	□	□	□	□	□	□	
	14	30	53-4		01-2	339	58-1	10-6	27	15-5	4-5	54-0	68	22 41	///	///	///	///	03 23	
27	15	45	53-4	..	01-7	354	27-7	10-7	27	11-0	4-7	54-1	66	21 53	///	///	///	///	03 26	
	16	60	53-3		02-2	8	57-4	10-8	27	06-3	4-7	54-1	64	21 23	///	///	///	///	03 29	
	17	75	53-3		02-8	23	27-2	10-8	27	01-6	4-9	54-1	62	21 01	22 27	///	///	02 33	02 13	
	18	90	53-3	N 20	03-3	37	57-0	10-8	N 26	56-7	5-1	54-1	60	20 43	21 52	///	///	02 13	02 05	
	19	105	53-2		03-8	52	26-8	10-9	26	51-6	5-1	54-1	N 58	20 43	21 52	///	///	02 05	01 42	
28	20	120	53-2		04-3	66	56-7	10-9	26	46-5	5-3	54-1	56	20 28	21 27	22 35	24 20	00 46	01 10	
	21	135	53-2	..	04-8	81	26-6	11-0	26	41-2	5-4	54-1	54	20 15	21 08	22 35	24 00	00 20	01 08	
	22	150	53-1		05-3	95	56-6	11-1	26	35-8	5-5	54-1	52	20 04	20 52	22 03	24 00	00 00	00 32	
	23	165	53-1		05-9	110	26-7	11-0	26	30-3	5-7	54-1	50	19 55	20 38	21 40	23 42	24 18	00 54	
													45	19 46	20 26	21 22	23 28	24 05	00 32	
29	00	180	53-0	N 20	06-4	124	56-7	11-2	N 26	24-6	5-7	54-1	40	19 28	20 02	20 47	22 58	23 38	24 10	
	01	195	53-0		06-9	139	26-9	11-2	26	18-9	5-9	54-1	N 40	19 13	19 44	20 23	22 35	23 17	23 52	
	02	210	53-0		07-4	153	57-1	11-2	26	13-0	6-0	54-1	35	19 00	19 29	20 03	22 15	22 59	23 37	
	03	225	52-9	..	07-9	168	27-3	11-3	26	07-0	6-2	54-1	30	18 49	19 16	19 48	21 59	22 44	23 24	
	04	240	52-9		08-4	182	57-6	11-3	26	00-8	6-2	54-1	20	18 31	18 55	19 23	21 31	22 18	23 01	
30	05	255	52-9		08-9	197	27-9	11-4	25	54-6	6-4	54-1	N 10	18 15	18 37	19 04	21 07	21 56	22 42	
	06	270	52-8	N 20	09-4	211	58-3	11-5	N 25	48-2	6-5	54-1	0	18 00	18 22	18 48	20 44	21 35	22 24	
	07	285	52-8		09-9	226	28-8	11-5	25	41-7	6-6	54-1	S 10	17 45	18 08	18 33	20 22	21 14	22 05	
	08	300	52-7		10-5	240	59-3	11-5	25	35-1	6-7	54-1	20	17 30	17 53	18 20	19 58	20 51	21 45	
	09	315	52-7	..	11-0	255	29-8	11-7	25	28-4	6-8	54-1	30	17 12	17 38	18 07	19 29	20 25	21 22	
31	10	330	52-7		11-5	270	00-5	11-6	25	21-6	7-0	54-1	35	17 02	17 29	18 00	19 13	20 09	21 09	
	11	345	52-6		12-0	284	31-1	11-8	25	14-6	7-0	54-1	40	16 50	17 19	17 53	18 53	19 51	20 53	
	12	0	52-6	N 20	12-5	299	01-9	11-7	N 25	07-6	7-2	54-2	45	16 36	17 09	17 45	18 29	19 29	20 34	
	13	15	52-5		13-0	313	32-6	11-9	25	00-4	7-3	54-2	S 50	16 20	16 56	17 36	17 59	19 01	20 10	
	14	30	52-5		13-5	328	03-5	11-9	24	53-1	7-4	54-2	52	16 12	16 50	17 32	17 43	18 47	19 59	
32	15	45	52-4	..	14-0	342	34-4	11-9	24	45-7	7-5	54-2	54	16 03	16 44	17 28	17 25	18 31	19 46	
	16	60	52-4		14-5	357	05-3	12-0	24	38-2	7-7	54-2	56	15 53	16 37	17 23	17 04	18 12	19 30	
	17	75	52-4		15-0	11	36-3	12-1	24	30-5	7-7	54-2	58	15 42	16 29	17 18	16 36	17 49	19 13	
	18	90	52-3	N 20	15-5	26	07-4	12-1	N 24	22-8	7-8	54-2	S 60	15 29	16 20	17 13	15 56	17 17	18 50	
	19	105	52-3		16-0	40														

	ARIES			VENUS -4.2			MARS -1.8			JUPITER -1.8			SATURN +0.7			STARS		
G.M.T.	G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	Name	S.H.A.	Dec.
d h	°	'	°	°	'	°	°	'	°	°	'	°	°	'	°		°	°
22	00	239 26.7	221 57.8 N	6 20.9	348 00.4 S	23 50.2	62 26.8 N	2 52.0	208 09.3 N	10 17.5	Acamar	315 43.8	S 40 25.5					
	01	254 29.1	236 58.6	21.3	3 03.6	50.2	77 29.3	52.0	223 11.4	17.6	Achernar	335 51.6	S 57 23.3					
	02	269 31.6	251 59.5	21.6	18 06.9	50.3	92 31.7	52.0	238 13.6	17.7	Acrux	173 46.6	S 62 56.1					
	03	284 34.1	267 00.3	21.9	33 10.2	50.3	107 34.2	52.0	253 15.8	17.8	Adhara	255 39.0	S 28 55.8					
	04	299 36.5	282 01.2	22.3	48 13.4	50.4	122 36.7	52.0	268 18.0	17.9	Aldebaran	291 27.9	N 16 27.0					
	05	314 39.0	297 02.0	22.6	63 16.7	50.4	137 39.2	52.0	283 20.2	18.0								
	06	329 41.5	312 02.9 N	6 22.9	78 20.0 S	23 50.5	152 41.7 N	2 52.0	298 22.3 N	10 18.1	Alioth	166 49.1	N 56 07.7					
	07	344 43.9	327 03.7	23.3	93 23.2	50.5	167 44.1	52.0	313 24.5	18.2	Alkaid	153 24.4	N 49 28.0					
	08	359 46.4	342 04.6	23.6	108 26.5	50.6	182 46.6	52.0	328 26.7	18.3	Al Na'ir	28 25.2	S 47 06.4					
	09	14 48.8	357 05.4	24.0	123 29.8	50.6	197 49.1	52.0	343 28.9	18.4	Alnilam	276 20.4	S 1 13.1					
	10	29 51.3	12 06.2	24.3	138 33.0	50.7	212 51.6	52.0	358 31.1	18.5	Alphard	218 28.9	S 8 31.5					
	11	44 53.8	27 07.1	24.6	153 36.3	50.7	227 54.0	52.0	13 33.3	18.6								
	12	59 56.2	42 07.9 N	6 25.0	168 39.6 S	23 50.7	242 56.5 N	2 52.0	28 35.4 N	10 18.7	Alphecca	126 38.7	N 26 48.9					
	13	74 58.7	57 08.7	25.3	183 42.9	50.8	257 59.0	51.9	43 37.6	18.8	Alpheratz	358 18.3	N 28 55.1					
	14	90 01.2	72 09.6	25.7	198 46.1	50.8	273 01.4	51.9	58 39.8	18.9	Altair	62 40.5	N 8 46.9					
	15	105 03.6	87 10.4	26.0	213 49.4	50.9	288 03.9	51.9	73 42.0	19.0	Ankaa	353 48.5	S 42 28.1					
	16	120 06.1	102 11.2	26.4	228 52.7	50.9	303 06.4	51.9	88 44.2	19.1	Antares	113 06.8	S 26 22.1					
	17	135 08.6	117 12.0	26.7	243 56.0	51.0	318 08.9	51.9	103 46.4	19.1								
	18	150 11.0	132 12.9 N	6 27.1	258 59.2 S	23 51.0	333 11.3 N	2 51.9	118 48.5 N	10 19.2	Arcturus	146 25.7	N 19 20.4					
	19	165 13.5	147 13.7	27.4	274 02.5	51.1	348 13.8	51.9	133 50.7	19.3	Atria	108 38.1	S 68 58.5					
	20	180 16.0	162 14.5	27.8	289 05.8	51.1	3 16.3	51.9	148 52.9	19.4	Avior	234 32.1	S 59 24.8					
	21	195 18.4	177 15.3	28.1	304 09.1	51.2	18 18.8	51.9	163 55.1	19.5	Bellatrix	279 08.0	N 6 19.5					
	22	210 20.9	192 16.1	28.5	319 12.4	51.2	33 21.2	51.9	178 57.3	19.6	Betelgeuse	271 37.6	N 7 24.3					
23	225 23.3	207 17.0	28.8	334 15.6	51.3	48 23.7	51.9	193 59.5	19.7									
23	00	240 25.8	222 17.8 N	6 29.2	349 18.9 S	23 51.3	63 26.2 N	2 51.9	209 01.6 N	10 19.8	Canopus	264 11.4	S 52 40.7					
	01	255 28.3	237 18.6	29.6	4 22.2	51.4	78 28.6	51.9	224 03.8	19.9	Capella	281 24.1	N 45 58.3					
	02	270 30.7	252 19.4	29.9	19 25.5	51.4	93 31.1	51.9	239 06.0	20.0	Deneb	49 54.1	N 45 09.8					
	03	285 33.2	267 20.2	30.3	34 28.8	51.5	108 33.6	51.8	254 08.2	20.1	Denebola	183 07.3	N 14 44.6					
	04	300 35.7	282 21.0	30.6	49 32.1	51.5	123 36.0	51.8	269 10.4	20.2	Diphda	349 29.3	S 18 09.2					
	05	315 38.1	297 21.8	31.0	64 35.4	51.5	138 38.5	51.8	284 12.6	20.3								
	06	330 40.6	312 22.6 N	6 31.3	79 38.6 S	23 51.6	153 41.0 N	2 51.8	299 14.7 N	10 20.4	Dubhe	194 31.8	N 61 55.3					
	07	345 43.1	327 23.4	31.7	94 41.9	51.6	168 43.5	51.8	314 16.9	20.5	Elnath	278 55.0	N 28 35.1					
	08	0 45.5	342 24.2	32.1	109 45.2	51.7	183 45.9	51.8	329 19.1	20.6	Eltanin	91 01.1	N 51 29.2					
	09	15 48.0	357 25.0	32.4	124 48.5	51.7	198 48.4	51.8	344 21.3	20.7	Enif	34 19.7	N 9 43.8					
	10	30 50.4	12 25.8	32.8	139 51.8	51.8	213 50.9	51.8	359 23.5	20.8	Fomalhaut	16 00.5	S 29 47.0					
	11	45 52.9	27 26.6	33.2	154 55.1	51.8	228 53.3	51.8	14 25.7	20.9								
	12	60 55.4	42 27.4 N	6 33.5	169 58.4 S	23 51.9	243 55.8 N	2 51.8	29 27.9 N	10 21.0	Gacrux	172 38.0	S 56 56.8					
	13	75 57.8	57 28.2	33.9	185 01.7	51.9	258 58.3	51.8	44 30.0	21.1	Gienah	176 26.4	S 17 22.5					
	14	91 00.3	72 29.0	34.3	200 05.0	51.9	274 00.7	51.7	59 32.2	21.2	Hadar	149 35.0	S 60 13.8					
	15	106 02.8	87 29.8	34.7	215 08.3	52.0	289 03.2	51.7	74 34.4	21.2	Hamal	328 38.7	N 23 19.0					
	16	121 05.2	102 30.6	35.0	230 11.6	52.0	304 05.7	51.7	89 36.6	21.3	Kaus Aust.	84 27.5	S 34 24.1					
	17	136 07.7	117 31.4	35.4	245 14.9	52.1	319 08.1	51.7	104 38.8	21.4								
	18	151 10.2	132 32.1 N	6 35.8	260 18.2 S	23 52.1	334 10.6 N	2 51.7	119 41.0 N	10 21.5	Kochab	137 16.8	N 74 16.8					
	19	166 12.6	147 32.9	36.1	275 21.5	52.2	349 13.1	51.7	134 43.1	21.6	Markab	14 11.6	N 15 02.2					
	20	181 15.1	162 33.7	36.5	290 24.8	52.2	4 15.5	51.7	149 45.3	21.7	Menkar	314 50.2	N 3 58.3					
	21	196 17.6	177 34.5	36.9	305 28.1	52.2	19 18.0	51.7	164 47.5	21.8	Menkent	148 46.6	S 36 13.4					
	22	211 20.0	192 35.3	37.3	320 31.4	52.3	34 20.4	51.7	179 49.7	21.9	Miaplacidus	221 47.4	S 69 35.7					
23	226 22.5	207 36.0	37.7	335 34.7	52.3	49 22.9	51.7	194 51.9	22.0									
24	00	241 24.9	222 36.8 N	6 38.0	350 38.0 S	23 52.4	64 25.4 N	2 51.6	209 54.1 N	10 22.1	Mirfak	309 28.7	N 49 45.2					
	01	256 27.4	237 37.6	38.4	5 41.3	52.4	79 27.8	51.6	224 56.2	22.2	Nunki	76 39.2	S 26 20.3					
	02	271 29.9	252 38.4	38.8	20 44.6	52.5	94 30.3	51.6	239 58.4	22.3	Peacock	54 11.1	S 56 50.0					
	03	286 32.3	267 39.1	39.2	35 47.9	52.5	109 32.8	51.6	255 00.6	22.4	Pollux	244 08.5	N 28 06.3					
	04	301 34.8	282 39.9	39.6	50 51.2	52.5	124 35.2	51.6	270 02.8	22.5	Procyon	245 34.7	N 5 18.4					
	05	316 37.3	297 40.7	40.0	65 54.5	52.6	139 37.7	51.6	285 05.0	22.6								
	06	331 39.7	312 41.4 N	6 40.3	80 57.8 S	23 52.6	154 40.2 N	2 51.6	300 07.2 N	10 22.7	Rasalhague	96 37.0	N 12 34.6					
	07	346 42.2	327 42.2	40.7	96 01.1	52.7	169 42.6	51.6	315 09.4	22.8	Regulus	208 18.8	N 12 07.1					
	08	1 44.7	342 43.0	41.1	111 04.4	52.7	184 45.1	51.5	330 11.5	22.9	Rigel	281 44.3	S 8 14.1					
	09	16 47.1	357 43.7	41.5	126 07.7	52.7	199 47.5	51.5	345 13.7	23.0	Rigel Kent.	140 36.8	S 60 42.7					
	10	31 49.6	12 44.5	41.9	141 11.0	52.8	214 50.0	51.5	0 15.9	23.1	Sabik	102 50.4	S 15 41.5					
	11	46 52.1	27 45.3	42.3	156 14.4	52.8	229 52.5	51.5	15 18.1	23.1								
	12	61 54.5	42 46.0 N	6 42.7	171 17.7 S	23 52.9	244 54.9 N	2 51.5	30 20.3 N	10 23.2	Schedar	350 19.2	N 56 22.0					
	13	76 57.0	57 46.8	43.1	186 21.0	52.9	259 57.4	51.5	45 22.5	23.3	Shaula	97 06.7	S 37 05.1					
	14	91 59.4	72 47.5	43.5	201 24.3	52.9	274 59.8	51.5	60 24.7	23.4	Sirius	259 03.4	S 16 40.4					
	15	107 01.9	87 48.3	43.9	216 27.6	53.0	290 02.3	51.5	75 26.8	23.5	Spica	159 06.1	S 11 00.3					
	16	122 04.4	102 49.0	44.3	231 30.9	53.0	305 04.8	51.4	90 29.0	23.6	Suhail	223 17.2	S 43 18.7					
	17	137 06.8	117 49.8	44.6	246 34.3	53.1	320 07.2	51.4	105 31.2	23.7								
	18	152 09.3	132 50.5 N	6 45.0	261 37.6 S	23 53.1	335 09.7 N	2 51.4	120 33.4 N	10 23.8	Vega	81 01.2	N 38 44.9					
	19	167 11.8	147 51.3	45.4	276 40.9	53.1	350 12.1	51.4	135 35.6	23.9	Zuben'ubi	137 42.0	S 15 55.1					
	20	182 14.2	162 52.0	45.8	291 44.2	53.2	5 14.6	51.4	150 37.8	24.0								
	21	197 16.7	177 52.8	46.2	306 47.5	53.2	20 17.0	51.4	165 39.9	24.1								
	22	212 19.2	192 53.5	46.6	321 50.9	53.3	35 19.5	51.4	180 42.1	24.2	Venus	341 52.0	9 10					
23	227 21.6	207 54.2	47.0	336 54.2	53.3	50 22.0	51.4	195 44.3	24.3	Mars	108 53.1	0 43						
										Jupiter	183 00.4	19 43						
										Saturn	328 35.8	10 02						
Mer. Pass.	h m																	
	7 57.0	v 0.8	d 0.4	v 3.3	d 0.0	v 2.5	d 0.0	v 2.2	d 0.1									

G.M.T.	SUN			MOON				Lat.	Twilight		Sun-rise	Moonrise				
	G.H.A.	Dec.		G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	22	23	24	25
d h									h m	h m	h m	h m	h m	h m	h m	h m
22	00	180 52.1	N 20 18.5	113 14.9	12.5	N 23 34.1	8.5	54.3	N 72	□	□	□	□	□	09 11	11 31
	01	195 52.0	19.0	127 46.4	12.5	23 25.6	8.6	54.3	N 70	□	□	□	□	07 03	09 36	11 41
	02	210 52.0	19.5	142 17.9	12.5	23 17.0	8.7	54.3	68	///	///	00 56	□	07 48	09 56	11 49
	03	225 51.9	20.0	156 49.4	12.7	23 08.3	8.8	54.3	66	///	///	01 51	06 02	08 18	10 11	11 56
	04	240 51.9	20.5	171 21.1	12.6	22 59.5	8.9	54.3	64	///	///	02 23	06 48	08 40	10 23	12 02
	05	255 51.8	21.0	185 52.7	12.8	22 50.6	9.0	54.3	62	///	01 16	02 47	07 18	08 58	10 33	12 07
	06	270 51.8	N 20 21.5	200 24.5	12.8	N 22 41.6	9.1	54.3	60	///	01 54	03 05	07 40	09 12	10 42	12 11
	07	285 51.7	22.0	214 56.3	12.8	22 32.5	9.3	54.3	N 58	///	02 21	03 21	07 58	09 25	10 50	12 15
	08	300 51.7	22.5	229 28.1	12.9	22 23.2	9.3	54.4	56	01 09	02 41	03 34	08 13	09 35	10 57	12 18
	09	315 51.7	23.0	244 00.0	13.0	22 13.9	9.4	54.4	54	01 44	02 57	03 45	08 26	09 44	11 03	12 21
T H U R S D A Y	10	330 51.6	23.5	258 32.0	13.0	22 04.5	9.5	54.4	52	02 08	03 11	03 55	08 37	09 53	11 08	12 24
	11	345 51.6	24.0	273 04.0	13.1	21 55.0	9.6	54.4	50	02 27	03 23	04 04	08 48	10 00	11 13	12 26
	12	0 51.5	N 20 24.4	287 36.1	13.1	N 21 45.4	9.7	54.4	45	03 03	03 48	04 23	09 08	10 16	11 24	12 32
	13	15 51.5	24.9	302 08.2	13.2	21 35.7	9.8	54.4	N 40	03 28	04 07	04 38	09 25	10 29	11 32	12 36
	14	30 51.4	25.4	316 40.4	13.2	21 25.9	9.9	54.4	35	03 48	04 23	04 51	09 40	10 40	11 40	12 40
	15	45 51.4	25.9	331 12.6	13.3	21 16.0	10.0	54.5	30	04 04	04 36	05 02	09 52	10 49	11 46	12 43
	16	60 51.3	26.4	345 44.9	13.3	21 06.0	10.1	54.5	20	04 29	04 58	05 21	10 13	11 06	11 57	12 49
	17	75 51.3	26.9	0 17.2	13.4	20 55.9	10.2	54.5	N 10	04 49	05 15	05 38	10 31	11 20	12 07	12 54
	18	90 51.2	N 20 27.4	14 49.6	13.4	N 20 45.7	10.2	54.5	0	05 05	05 31	05 53	10 48	11 33	12 16	12 59
	19	105 51.2	27.9	29 22.0	13.5	20 35.5	10.4	54.5	S 10	05 20	05 46	06 08	11 05	11 46	12 25	13 04
F R I D A Y	20	120 51.1	28.4	43 54.5	13.6	20 25.1	10.4	54.5	20	05 34	06 01	06 24	11 22	12 00	12 35	13 09
	21	135 51.1	28.8	58 27.1	13.6	20 14.7	10.6	54.5	30	05 48	06 17	06 42	11 43	12 16	12 46	13 14
	22	150 51.0	29.3	72 59.7	13.6	20 04.1	10.6	54.6	35	05 55	06 26	06 53	11 55	12 25	12 52	13 17
	23	165 51.0	29.8	87 32.3	13.7	19 53.5	10.7	54.6	40	06 02	06 35	07 05	12 09	12 36	12 59	13 21
	00	180 50.9	N 20 30.3	102 05.0	13.8	N 19 42.8	10.8	54.6	45	06 11	06 47	07 19	12 25	12 48	13 08	13 25
	01	195 50.9	30.8	116 37.8	13.8	19 32.0	10.9	54.6	S 50	06 20	07 00	07 37	12 45	13 03	13 18	13 30
	02	210 50.8	31.3	131 10.6	13.8	19 21.1	11.0	54.6	52	06 24	07 06	07 45	12 54	13 10	13 22	13 33
	03	225 50.8	31.7	145 43.4	13.9	19 10.1	11.1	54.6	54	06 29	07 13	07 54	13 04	13 17	13 27	13 35
	04	240 50.7	32.2	160 16.3	13.9	18 59.0	11.2	54.7	56	06 33	07 20	08 04	13 16	13 26	13 33	13 38
	05	255 50.7	32.7	174 49.2	14.0	18 47.8	11.2	54.7	58	06 38	07 28	08 16	13 30	13 35	13 39	13 41
S A T U R D A Y	06	270 50.6	N 20 33.2	189 22.2	14.0	N 18 36.6	11.3	54.7	S 60	06 44	07 38	08 30	13 46	13 46	13 46	13 45
	07	285 50.6	33.7	203 55.2	14.1	18 25.3	11.4	54.7	Lat.	Sun-set	Twilight		Moonset			
	08	300 50.5	34.2	218 28.3	14.1	18 13.9	11.5	54.7			Civil	Naut.	22	23	24	25
	09	315 50.5	34.6	233 01.4	14.2	18 02.4	11.6	54.8		h m	h m	h m	h m	h m	h m	h m
	10	330 50.4	35.1	247 34.6	14.2	17 50.8	11.6	54.8		h m	h m	h m	h m	h m	h m	h m
	11	345 50.4	35.6	262 07.8	14.2	17 39.2	11.8	54.8	N 72	□	□	□	□	□	03 25	02 36
	12	0 50.3	N 20 36.1	276 41.0	14.3	N 17 27.4	11.8	54.8	N 70	□	□	□	□	□	03 59	02 57
	13	15 50.3	36.5	291 14.3	14.4	17 15.6	11.9	54.8	68	23 06	0	0	0	0	03 12	02 36
	14	30 50.2	37.0	305 47.7	14.3	17 03.7	11.9	54.9	66	22 06	0	0	0	0	03 23	02 41
	15	45 50.2	37.5	320 21.0	14.4	16 51.8	12.1	54.9	64	21 33	0	0	0	0	02 36	02 18
S U N D A Y	16	60 50.1	38.0	334 54.4	14.5	16 39.7	12.1	54.9	62	21 08	22 42	0	0	0	02 05	02 00
	17	75 50.1	38.4	349 27.9	14.5	16 27.6	12.2	54.9	60	20 49	22 02	0	0	0	01 42	01 44
	18	90 50.0	N 20 38.9	4 01.4	14.5	N 16 15.4	12.3	55.0	N 58	20 34	21 35	0	0	0	01 24	01 31
	19	105 50.0	39.4	18 34.9	14.6	16 03.1	12.3	55.0	56	20 20	21 14	22 49	01 08	01 20	01 28	01 34
	20	120 49.9	39.9	33 08.5	14.6	15 50.8	12.5	55.0	54	20 09	20 57	22 12	00 54	01 10	01 21	01 30
	21	135 49.9	40.3	47 42.1	14.6	15 38.3	12.5	55.0	52	19 59	20 43	21 47	00 43	01 01	01 15	01 26
	22	150 49.8	40.8	62 15.7	14.7	15 25.8	12.5	55.0	50	19 50	20 31	21 27	00 32	00 53	01 09	01 23
	23	165 49.7	41.3	76 49.4	14.7	15 13.3	12.7	55.1	45	19 31	20 06	20 52	00 10	00 36	00 57	01 15
	00	180 49.7	N 20 41.7	91 23.1	14.7	N 15 00.6	12.7	55.1	N 40	19 15	19 47	20 26	24 21	00 21	00 47	01 09
	M O N D A Y	01	195 49.6	42.2	105 56.8	14.7	14 47.9	12.8	55.1	35	19 02	19 31	20 06	24 09	00 09	00 38
02		210 49.6	42.7	120 30.5	14.8	14 35.1	12.8	55.1	30	18 51	19 18	19 50	23 59	24 30	00 30	00 59
03		225 49.5	43.1	135 04.3	14.9	14 22.3	12.9	55.2	20	18 32	18 56	19 24	23 41	24 17	00 17	00 51
04		240 49.5	43.6	149 38.2	14.8	14 09.4	13.0	55.2	N 10	18 16	18 38	19 05	23 25	24 05	00 05	00 44
05		255 49.4	44.1	164 12.0	14.9	13 56.4	13.1	55.2	0	18 00	18 22	18 48	23 10	23 54	24 37	00 37
06		270 49.4	N 20 44.5	178 45.9	14.9	N 13 43.3	13.1	55.2	S 10	17 45	18 07	18 33	22 55	23 43	24 30	00 30
07		285 49.3	45.0	193 19.8	14.9	13 30.2	13.2	55.3	20	17 29	17 53	18 19	22 38	23 31	24 22	00 22
08		300 49.3	45.5	207 53.7	15.0	13 17.0	13.2	55.3	30	17 11	17 36	18 06	22 20	23 17	24 14	00 14
09		315 49.2	45.9	222 27.7	15.0	13 03.8	13.4	55.3	35	17 00	17 27	17 58	22 09	23 09	24 09	00 09
10		330 49.1	46.4	237 01.7	15.0	12 50.4	13.3	55.3	40	16 48	17 18	17 51	21 56	22 59	24 03	00 03
T U E S D A Y	11	345 49.1	46.9	251 35.7	15.0	12 37.1	13.5	55.4	45	16 34	17 06	17 42	21 41	22 48	23 56	25 05
	12	0 49.0	N 20 47.3	266 09.7	15.0	N 12 23.6	13.5	55.4	S 50	16 16	16 53	17 33	21 22	22 35	23 48	25 02
	13	15 49.0	47.8	280 43.7	15.1	12 10.1	13.6	55.4	52	16 08	16 47	17 29	21 13	22 29	23 44	25 00
	14	30 48.9	48.3	295 17.8	15.1	11 56.5	13.6	55.5	54	15 59	16 40	17 24	21 04	22 22	23 40	24 59
	15	45 48.9	48.7	309 51.9	15.1	11 42.9	13.7	55.5	56	15 49	16 33	17 20	20 52	22 14	23 36	24 57
	16	60 48.8	49.2	324 26.0	15.											

G.M.T.		ARIES		VENUS -4.2		MARS -1.9		JUPITER -1.8		SATURN +0.7		STARS							
		G.H.A.		G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.					
d	h	m	s	m	s	m	s	m	s	m	s		m	s					
SUNDAY	00	242	24.1	222	55.0	N 6 47.5	351	57.5	S 23 53.3	65	24.4	N 2 51.3	210	46.5	N 10 24.4	Acamar	315	43.8	S 40 25.5
	01	257	26.5	237	55.7	47.9	7	00.8	53.4	80	26.9	51.3	225	48.7	24.5	Achernar	335	51.6	S 57 23.3
	02	272	29.0	252	56.5	48.3	22	04.1	53.4	95	29.3	51.3	240	50.9	24.6	Acrux	173	46.6	S 62 56.1
	03	287	31.5	267	57.2	48.7	37	07.5	53.5	110	31.8	51.3	255	53.1	24.7	Adhara	255	39.0	S 28 55.8
	04	302	33.9	282	57.9	49.1	52	10.8	53.5	125	34.2	51.3	270	55.3	24.8	Aldebaran	291	27.9	N 16 27.0
	05	317	36.4	297	58.7	49.5	67	14.1	53.5	140	36.7	51.3	285	57.4	24.8				
	06	332	38.9	312	59.4	N 6 49.9	82	17.4	S 23 53.6	155	39.1	N 2 51.3	300	59.6	N 10 24.9	Alioth	166	49.1	N 56 07.7
	07	347	41.3	328	00.1	50.3	97	20.8	53.6	170	41.6	51.2	316	01.8	25.0	Alkaid	153	24.4	N 49 28.1
	08	2	43.8	343	00.8	50.7	112	24.1	53.6	185	44.1	51.2	331	04.0	25.1	Al Na'ir	28	25.2	S 47 06.1
	09	17	46.3	358	01.6	51.1	127	27.4	53.7	200	46.5	51.2	346	06.2	25.2	Anilam	276	20.4	S 1 13.1
	10	32	48.7	13	02.3	51.5	142	30.8	53.7	215	49.0	51.2	1	08.4	25.3	Alphard	218	28.9	S 8 31.5
	11	47	51.2	28	03.0	51.9	157	34.1	53.7	230	51.4	51.2	16	10.6	25.4				
	12	62	53.6	43	03.7	N 6 52.4	172	37.4	S 23 53.8	245	53.9	N 2 51.2	31	12.7	N 10 25.5	Alphecca	126	38.7	N 26 48.9
	13	77	56.1	58	04.5	52.8	187	40.7	53.8	260	56.3	51.1	46	14.9	25.6	Alpheratz	358	18.2	N 28 55.1
	14	92	58.6	73	05.2	53.2	202	44.1	53.9	275	58.8	51.1	61	17.1	25.7	Altair	62	40.5	N 8 46.9
	15	108	01.0	88	05.9	53.6	217	47.4	53.9	291	01.2	51.1	76	19.3	25.8	Antaa	353	48.5	S 42 28.1
	16	123	03.5	103	06.6	54.0	232	50.7	53.9	306	03.7	51.1	91	21.5	25.9	Antares	113	06.8	S 26 22.1
	17	138	06.0	118	07.3	54.4	247	54.1	54.0	321	06.1	51.1	106	23.7	26.0				
	18	153	08.4	133	08.0	N 6 54.9	262	57.4	S 23 54.0	336	08.6	N 2 51.1	121	25.9	N 10 26.1	Arcturus	146	25.7	N 19 20.4
	19	168	10.9	148	08.8	55.3	278	00.8	54.0	351	11.0	51.0	132	28.1	26.2	Atria	108	38.1	S 68 58.6
	20	183	13.4	163	09.5	55.7	293	04.1	54.1	6	13.5	51.0	151	30.2	26.3	Avior	234	32.2	S 59 24.8
	21	198	15.8	178	10.2	56.1	308	07.4	54.1	21	15.9	51.0	166	32.4	26.3	Bellatrix	279	08.0	N 6 19.5
	22	213	18.3	193	10.9	56.6	323	10.8	54.1	36	18.4	51.0	181	34.6	26.4	Betelgeuse	271	37.6	N 7 24.3
23	228	20.8	208	11.6	57.0	338	14.1	54.2	51	20.8	51.0	196	36.8	26.5					
MONDAY	00	243	23.2	223	13.3	N 6 57.4	353	17.4	S 23 54.2	66	23.3	N 2 51.0	211	39.0	N 10 26.6	Canopus	264	11.4	S 52 40.7
	01	258	25.7	238	13.0	57.8	8	20.8	54.2	81	25.7	50.9	226	41.2	26.7	Capella	281	24.1	N 45 58.3
	02	273	28.1	253	13.7	58.3	23	24.1	54.3	96	28.2	50.9	241	43.4	26.8	Deneb	49	54.1	N 45 09.9
	03	288	30.6	268	14.4	58.7	38	27.5	54.3	111	30.6	50.9	256	45.6	26.9	Denebola	183	07.3	N 14 44.6
	04	303	33.1	283	15.1	59.1	53	30.8	54.3	126	33.1	50.9	271	47.7	27.0	Diphda	349	29.3	S 18 09.2
	05	318	35.5	298	15.8	6 59.5	68	34.1	54.4	141	35.5	50.9	286	49.9	27.1				
	06	333	38.0	313	16.5	N 7 00.0	83	37.5	S 23 54.4	156	38.0	N 2 50.9	301	52.1	N 10 27.2	Dubhe	194	31.8	N 61 55.3
	07	348	40.5	328	17.2	00.4	98	40.8	54.4	171	40.4	50.8	316	54.3	27.3	Elnath	278	55.0	N 28 35.1
	08	3 42.9	343	17.9	00.8	113	44.2	54.5	186	42.9	50.8	331	56.5	27.4	Eltanin	91	01.1	N 51 29.2	
	09	18	45.4	358	18.6	01.3	128	47.5	54.5	201	45.3	50.8	346	58.7	27.5	Enif	34	19.7	N 9 43.8
	10	33	47.9	13	19.3	01.7	143	50.9	54.5	216	47.8	50.8	2	00.9	27.6	Fomalhaut	16	00.5	S 29 47.0
	11	48	50.3	28	19.9	02.1	158	54.2	54.6	231	50.2	50.8	17	03.1	27.6				
	12	63	52.8	43	20.6	N 7 02.6	173	57.6	S 23 54.6	246	52.7	N 2 50.8	32	05.2	N 10 27.7	Gacrux	172	38.1	S 56 56.8
	13	78	55.3	58	21.3	03.0	189	00.9	54.6	261	55.1	50.7	47	07.4	27.8	Gienah	176	26.5	S 17 22.5
	14	93	57.7	73	22.0	03.5	204	04.2	54.6	276	57.6	50.7	62	09.6	27.9	Hadar	149	35.0	S 60 13.8
	15	109	00.2	88	22.7	03.9	219	07.6	54.7	292	00.0	50.7	77	11.8	28.0	Hamal	328	38.7	N 23 19.0
	16	124	02.6	103	23.4	04.3	234	10.9	54.7	307	02.4	50.7	92	14.0	28.1	Kaus Aust.	84	27.5	S 34 24.1
	17	139	05.1	118	24.0	04.8	249	14.3	54.7	322	04.9	50.7	107	16.2	28.2				
	18	154	07.6	133	24.7	N 7 05.2	264	17.6	S 23 54.8	337	07.3	N 2 50.6	122	18.4	N 10 28.3	Kochab	137	16.9	N 74 16.8
	19	169	10.0	148	25.4	05.6	279	21.0	54.8	352	09.8	50.6	137	20.6	28.4	Markab	14	11.6	N 15 02.2
	20	184	12.5	163	26.1	06.1	294	24.3	54.8	7	12.2	50.6	152	22.8	28.5	Menkar	314	50.2	N 3 58.3
	21	199	15.0	178	26.7	06.5	309	27.7	54.9	22	14.7	50.6	167	24.9	28.6	Menkent	148	46.6	S 36 13.5
	22	214	17.4	193	27.4	07.0	324	31.0	54.9	37	17.1	50.6	182	27.1	28.7	Miaplacidus	221	47.5	S 69 35.7
23	229	19.9	208	28.1	07.4	339	34.4	54.9	52	19.6	50.5	197	29.3	28.8					
TUESDAY	00	244	22.4	223	28.8	N 7 07.9	354	37.8	S 23 54.9	67	22.0	N 2 50.5	212	31.5	N 10 28.9	Mirfak	309	28.7	N 49 45.2
	01	259	24.8	238	29.4	08.3	9	41.1	55.0	82	24.4	50.5	227	33.7	28.9	Nunki	76	39.2	S 26 20.3
	02	274	27.3	253	30.1	08.8	24	44.5	55.0	97	26.9	50.5	242	35.9	29.0	Peacock	54	11.0	S 56 50.0
	03	289	29.8	268	30.8	09.2	39	47.8	55.0	112	29.3	50.5	257	38.1	29.1	Pollux	244	08.6	N 28 06.3
	04	304	32.2	283	31.4	09.7	54	51.2	55.1	127	31.8	50.4	272	40.3	29.2	Procyon	245	34.7	N 5 18.4
	05	319	34.7	298	32.1	10.1	69	54.5	55.1	142	34.2	50.4	287	42.5	29.3				
	06	334	37.1	313	32.8	N 7 10.6	84	57.9	S 23 55.1	157	36.7	N 2 50.4	302	44.7	N 10 29.4	Rasalhague	96	37.0	N 12 34.6
	07	349	39.6	328	33.4	11.0	100	01.2	55.1	172	39.1	50.4	317	46.8	29.5	Regulus	208	18.8	N 12 07.1
	08	4 42.1	343	34.1	11.5	115	04.6	55.2	187	41.5	50.4	332	49.0	29.6	Rigel	281	44.3	S 8 14.1	
	09	19	44.5	358	34.7	11.9	130	08.0	55.2	202	44.0	50.3	347	51.2	29.7	Rigil Kent.	140	36.8	S 60 42.7
	10	34	47.0	13	35.4	12.4	145	11.3	55.2	217	46.4	50.3	2	53.4	29.8	Sabik	102	50.4	S 15 41.5
	11	49	49.5	28	36.0	12.8	160	14.7	55.3	232	48.9	50.3	17	55.6	29.9				
	12	64	51.9	43	36.7	N 7 13.3	175	18.0	S 23 55.3	247	51.3	N 2 50.3	32	57.8	N 10 30.0	Schedar	350	19.2	N 56 22.0
	13	79	54.4	58	37.4	13.7	190	21.4	55.3	262	53.7	50.2	48	00.0	30.1	Shaula	97	06.7	S 37 05.1
	14	94	56.9	73	38.0	14.2	205	24.8	55.3	277	56.2	50.2	63	02.2	30.1	Sirius	259	03.4	S 16 40.4
	15	109	59.3	88	38.7	14.7	220	28.1	55.4	292	58.6	50.2	78	04.4	30.2	Spica	159	06.1	S 11 00.3
	16	125	01.8	103	39.3	15.1	235	31.5	55.4	308	01.1	50.2	93	06.5	30.3	Suhail	223	17.2	S 43 18.7
	17	140	04.2	118	39.9	15.6	250	34.9	55.4	323	03.5	50.2	108	08.7	30.4				
	18	155	06.7	133	40.6	N 7 16.1	265	38.2	S 23 55.4	338	05.9	N 2 50.1	123	10.9	N 10 30.5	Vega	81	01.2	N 38 45.0
	19	170	09.2	148	41.2	16.5	280	41.6	55.5	353	08.4	50.1	138	13.1	30.6	Zuben'ubi	137	42.0	S 15 55.1
	20	185	11.6	163	41.9	17.0	295	44.9	55.5	8	10.8	50.1	153	15.3	30.7				
	21	200	14.1	178	42.5	17.4	310	48.3	55.5	23	13.2	50.1	168	17.5	30.8		S.H.A.		Mer. Pass.
	22	215	16.6	193	43.2	17.9	325	51.7	55.6	38	15.7	50.0	183	19.7	30.9	Venus	339	49.1	9 07
23	230	19.0	208	43.8	18.4	340	55.0	55.6	53	18.1	50.0	198	21.9	31.0	Mars	109	54.2	0 27	
Mer. Pass.		h	m													Jupiter	183	00.1	19 31

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise									
		G.H.A.	Dec.	G.H.A.	φ	Dec.	d	H.P.		Naut.	Civil		25	26	27	28						
d	h	$^{\circ}$	$'$	$^{\circ}$	$'$	$^{\circ}$	$'$	$^{\circ}$	$'$	$^{\circ}$	h	m	h	m	h	m	h	m				
25	00	180	48.3	N 20	52.8	80	59.4	15.2	N	9	37.6	14.2	55.8	N 70	$\square$	$\square$	$\square$	11 31	13 40	15 55	18 36	
	01	195	48.3		53.3	95	33.6	15.2		9	23.4	14.3	55.8	68	////	////	00 21	11 41	13 40	15 45	18 06	
	02	210	48.2		53.7	110	07.8	15.2		9	09.1	14.3	55.8	66	////	////	01 39	11 56	13 41	15 36	17 45	
	03	225	48.2		54.2	124	42.0	15.3		8	54.8	14.3	55.8	64	////	////	02 14	12 02	13 41	15 23	17 15	
	04	240	48.1		54.6	139	16.3	15.2		8	40.5	14.4	55.9	62	////	01 00	02 40	12 07	13 41	15 18	17 03	
	05	255	48.0		55.1	153	50.5	15.2		8	26.1	14.5	55.9	60	////	01 45	03 00	12 11	13 41	15 14	16 54	
	06	270	48.0	N 20	55.5	168	24.7	15.3	N	8	11.6	14.5	55.9	N 58	////	02 13	03 16	12 15	13 41	15 10	16 45	
	07	285	47.9		56.0	182	59.0	15.2		7	57.1	14.6	56.0	56	00 54	02 35	03 30	12 18	13 41	15 07	16 38	
	08	300	47.9		56.4	197	33.2	15.3		7	42.5	14.6	56.0	54	01 35	02 52	03 42	12 21	13 41	15 04	16 32	
	09	315	47.8		56.9	212	07.5	15.2		7	27.9	14.6	56.0	52	02 02	03 07	03 52	12 24	13 41	15 01	16 26	
SUN	10	330	47.7		57.3	226	41.7	15.3		7	13.3	14.7	56.1	50	02 22	03 20	04 01	12 26	13 41	14 58	16 21	
	11	345	47.7		57.8	241	16.0	15.2		6	58.6	14.8	56.1	45	02 59	03 45	04 21	12 32	13 41	14 53	16 09	
	12	0	47.6	N 20	58.2	255	50.2	15.2	N	6	43.8	14.8	56.1	N 40	03 25	04 05	04 36	12 36	13 41	14 49	16 00	
	13	15	47.5		58.7	270	24.4	15.2		6	29.0	14.8	56.2	35	03 46	04 21	04 50	12 40	13 41	14 45	15 52	
	14	30	47.5		59.1	284	58.6	15.3		6	14.2	14.9	56.2	30	04 02	04 34	05 01	12 43	13 41	14 42	15 45	
	15	45	47.4	20	59.6	299	32.9	15.2		5	59.3	14.9	56.2	20	04 28	04 57	05 21	12 49	13 41	14 36	15 34	
	16	60	47.4	21	00.0	314	07.1	15.2		5	44.4	15.0	56.3	N 10	04 48	05 15	05 38	12 54	13 42	14 31	15 23	
	17	75	47.3		00.5	328	41.3	15.1		5	29.4	15.0	56.3	0	05 05	05 31	05 53	12 59	13 42	14 26	15 14	
	18	90	47.2	N 21	00.9	343	15.4	15.2	N	5	14.4	15.0	56.3	S 10	05 21	05 46	06 09	13 04	13 42	14 22	15 04	
	19	105	47.2		01.4	357	49.6	15.2		4	59.4	15.1	56.4	20	05 35	06 02	06 25	13 09	13 42	14 17	14 54	
DAY	20	120	47.1		01.8	12	23.8	15.1		4	44.3	15.1	56.4	30	05 49	06 18	06 44	13 14	13 42	14 11	14 43	
	21	135	47.0		02.2	26	57.9	15.1		4	29.2	15.2	56.4	35	05 56	06 27	06 55	13 17	13 42	14 08	14 37	
	22	150	47.0		02.7	41	32.0	15.1		4	14.0	15.2	56.5	40	06 04	06 38	07 08	13 21	13 42	14 05	14 29	
	23	165	46.9		03.1	56	06.1	15.1		3	58.8	15.2	56.5	45	06 13	06 49	07 22	13 25	13 43	14 01	14 21	
	00	180	46.8	N 21	03.6	70	40.2	15.1	N	3	43.6	15.3	56.5	S 50	06 23	07 03	07 40	13 30	13 43	13 56	14 11	
	01	195	46.8		04.0	85	14.3	15.0		3	28.3	15.3	56.6	52	06 27	07 10	07 49	13 33	13 43	13 54	14 06	
	02	210	46.7		04.4	99	48.3	15.0		3	13.0	15.3	56.6	54	06 32	07 17	07 58	13 35	13 43	13 51	14 01	
	03	225	46.7		04.9	114	22.3	15.0		2	57.7	15.4	56.6	56	06 37	07 24	08 09	13 38	13 43	13 49	13 55	
	04	240	46.6		05.3	128	56.3	15.0		2	42.3	15.4	56.7	58	06 42	07 33	08 21	13 41	13 43	13 46	13 49	
	05	255	46.5		05.7	143	30.3	15.0		2	26.9	15.4	56.7	S 60	06 48	07 42	08 35	13 45	13 44	13 43	13 42	
MORNING	06	270	46.5	N 21	06.2	158	04.3	14.9	N	2	11.5	15.4	56.8									
	07	285	46.4		06.6	172	38.2	14.9		1	56.1	15.5	56.8									
	08	300	46.3		07.0	187	12.1	14.8		1	40.6	15.5	56.8									
	09	315	46.3		07.5	201	45.9	14.8		1	25.1	15.6	56.9									
	10	330	46.2		07.9	216	19.7	14.8		1	09.5	15.6	56.9									
	11	345	46.1		08.3	230	53.5	14.8		0	54.0	15.6	56.9									
	12	0	46.1	N 21	08.8	245	27.3	14.7	N	0	38.4	15.6	57.0									
	13	15	46.0		09.2	260	01.0	14.7		0	22.8	15.7	57.0									
	14	30	45.9		09.6	274	34.7	14.6	N	0	07.1	15.6	57.1	66	22 19	00 00	00 00	02 03	01 49	01 35	01 19	
	15	45	45.9		10.1	289	08.3	14.6	S	0	08.5	15.7	57.1	64	21 42	00 00	00 00	01 56	01 46	01 37	01 27	
DAY	16	60	45.8		10.5	303	41.9	14.6		0	24.2	15.7	57.1	62	21 16	23 00	00 00	01 49	01 44	01 39	01 34	
	17	75	45.7		10.9	318	15.5	14.5		0	39.9	15.7	57.2	60	20 56	22 12	00 00	01 43	01 42	01 41	01 40	
	18	90	45.7	N 21	11.4	332	49.0	14.4	S	0	55.6	15.8	57.2	N 58	20 39	21 42	00 00	01 38	01 40	01 43	01 45	
	19	105	45.6		11.8	347	22.4	14.5		1	11.4	15.7	57.2	56	20 25	21 21	23 05	01 34	01 39	01 44	01 50	
	20	120	45.5		12.2	1	55.9	14.5		1	27.1	15.8	57.3	54	20 13	21 03	22 21	01 30	01 38	01 45	01 54	
	21	135	45.4		12.6	16	29.2	14.4		1	42.9	15.8	57.3	52	20 03	20 48	21 54	01 26	01 36	01 46	01 58	
	22	150	45.4		13.1	31	02.6	14.2		1	58.7	15.8	57.4	50	19 53	20 35	21 33	01 23	01 35	01 48	02 01	
	23	165	45.3		13.5	45	35.8	14.3		2	14.5	15.8	57.4	45	19 34	20 09	20 56	01 15	01 33	01 50	02 09	
	EVENING	00	180	45.2	N 21	13.9	60	09.1	14.1	S	2	30.3	15.8	57.4	N 40	19 18	19 50	20 29	01 09	01 31	01 52	02 15
		01	195	45.2		14.3	74	42.2	14.1		2	46.1	15.8	57.5	35	19 05	19 33	20 09	01 04	01 29	01 54	02 21
02		210	45.1		14.8	89	15.3	14.1		3	01.9	15.9	57.5	30	18 53	19 20	19 52	00 59	01 27	01 55	02 25	
03		225	45.0		15.2	103	48.4	14.0		3	17.8	15.8	57.6	20	18 33	18 57	19 26	00 51	01 24	01 58	02 34	
04		240	45.0		15.6	118	21.4	14.0		3	33.6	15.9	57.6	N 10	18 16	18 39	19 06	00 44	01 22	02 00	02 41	
05		255	44.9		16.0	132	54.4	13.8		3	49.5	15.8	57.6	0	18 01	18 23	18 48	00 37	01 19	02 03	02 48	
06		270	44.8	N 21	16.4	147	27.2	13.9	S	4	05.3	15.9	57.7	S 10	17 45	18 07	18 33	00 30	01 17	02 05	02 55	
07		285	44.7		16.9	162	00.1	13.7		4	21.2	15.9	57.7	20	17 28	17 52	18 19	00 22	01 14	02 07	03 03	
08		300	44.7		17.3	176	32.8	13.7		4	37.1	15.8	57.8	30	17 10	17 35	18 05	00 14	01 11	02 10	03 12	
09		315	44.6		17.7	191	05.5	13.6		4	52.9	15.9	57.8	35	16 59	17 26	17 57	00 09	01 09	02 11	03 17	
TUESDAY	10	330	44.5		18.1	205	38.1	13.6		5	08.8	15.9	57.8	40	16 46	17 16	17 49	00 03	01 07	02 13	03 22	
	11	345	44.5		18.5	220	10.7	13.5		5	24.7	15.8	57.9	45	16 32	17 04	17 40	25 0				

G.M.T.		ARIES			VENUS -4.1			MARS -1.9			JUPITER -1.7			SATURN +0.7			STARS		
		G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	Name	S.H.A.	Dec.
d	h	°	'	°	°	'	°	'	°	'	°	'	°	'	°	'		°	'
28	00	245	21.5	223 44.4 N	7 18.8	355 58.4 S	23 55.6	68 20.5 N	2 50.0	213 24.1 N	10 31.1	Acamar	315 43.8	S 40 25.4					
	01	260	24.0	238 45.1	19.3	11 01.8	55.6	83 23.0	50.0	228 26.3	31.2	Achernar	335 51.6	S 57 23.3					
	02	275	26.4	253 45.7	19.8	26 05.2	55.7	98 25.4	50.0	243 28.4	31.3	Acrux	173 46.6	S 62 56.1					
	03	290	28.9	268 46.3	.. 20.2	41 08.5	.. 55.7	113 27.9	.. 49.9	258 30.6	.. 31.3	Adhara	255 39.0	S 28 55.8					
	04	305	31.3	283 47.0	20.7	56 11.9	55.7	128 30.3	49.9	273 32.8	31.4	Aldebaran	291 27.9	N 16 27.0					
WEDNESDAY	05	320	33.8	298 47.6	21.2	71 15.3	55.7	143 32.7	49.9	288 35.0	31.5								
	06	335	36.3	313 48.2 N	7 21.7	86 18.6 S	23 55.7	158 35.2 N	2 49.9	303 37.2 N	10 31.6	Alioth	166 49.2	N 56 07.7					
	07	350	38.7	328 48.9	22.1	101 22.0	55.8	173 37.6	49.8	318 39.4	31.7	Alkaid	153 24.4	N 49 28.1					
	08	5 41.2	343 49.5	22.6	116 25.4	55.8	188 40.0	49.8	333 41.6	31.8	Al Na'ir	28 25.1	S 47 06.4						
	09	20 43.7	358 50.1	.. 23.1	131 28.7	.. 55.8	203 42.5	.. 49.8	348 43.8	.. 31.9	Alnilam	276 20.4	S 1 13.3						
THURSDAY	10	35 46.1	13 50.7	23.5	146 32.1	55.8	218 44.9	49.8	3 46.0	32.0	Alphard	218 28.9	S 8 31.5						
	11	50 48.6	28 51.4	24.0	161 35.5	55.9	233 47.3	49.7	18 48.2	32.1									
	12	65 51.1	43 52.0 N	7 24.5	176 38.9 S	23 55.9	248 49.8 N	2 49.7	33 50.4 N	10 32.2	Alphecca	126 38.7	N 26 48.9						
	13	80 53.5	58 52.6	25.0	191 42.2	55.9	263 52.2	49.7	48 52.5	32.3	Alpheratz	358 18.2	N 28 55.1						
	14	95 56.0	73 53.2	25.5	206 45.6	55.9	278 54.6	49.7	63 54.7	32.3	Altair	62 40.4	N 8 47.0						
FRIDAY	15	110 58.5	88 53.8	.. 25.9	221 49.0	.. 56.0	293 57.1	.. 49.6	78 56.9	.. 32.4	Ankaa	353 48.4	S 42 28.1						
	16	126 00.9	103 54.5	26.4	236 52.4	56.0	308 59.5	49.6	93 59.1	32.5	Antares	113 06.7	S 26 22.1						
	17	141 03.4	118 55.1	26.9	251 55.7	56.0	324 01.9	49.6	109 01.3	32.6									
	18	156 05.8	133 55.7 N	7 27.4	266 59.1 S	23 56.0	339 04.3 N	2 49.6	124 03.5 N	10 32.7	Arcturus	146 25.7	N 19 20.4						
	19	171 08.3	148 56.3	27.9	282 02.5	56.0	354 06.8	49.5	139 05.7	32.8	Atria	108 38.0	S 68 58.6						
SATURDAY	20	186 10.8	163 56.9	28.3	297 05.9	56.1	9 09.2	49.5	154 07.9	32.9	Avior	234 32.2	S 59 24.8						
	21	201 13.2	178 57.5	.. 28.8	312 09.2	.. 56.1	24 11.6	.. 49.5	169 10.1	.. 33.0	Bellatrix	279 08.0	N 6 19.5						
	22	216 15.7	193 58.1	29.3	327 12.6	56.1	39 14.1	49.5	184 12.3	33.1	Betelgeuse	271 37.6	N 7 24.3						
	23	231 18.2	208 58.7	29.8	342 16.0	56.1	54 16.5	49.4	199 14.5	33.2									
	24	246 20.6	223 59.3 N	7 30.3	357 19.4 S	23 56.2	69 18.9 N	2 49.4	214 16.7 N	10 33.3	Canopus	264 11.4	S 52 40.7						
SUNDAY	01	261 23.1	238 59.9	30.8	12 22.8	56.2	84 21.4	49.4	229 18.8	33.3	Capella	281 24.1	N 45 58.2						
	02	276 25.6	254 00.5	31.2	27 26.1	56.2	99 23.8	49.4	244 21.0	33.4	Deneb	49 54.0	N 45 09.9						
	03	291 28.0	269 01.1	.. 31.7	42 29.5	.. 56.2	114 26.2	.. 49.3	259 23.2	.. 33.5	Denebola	183 07.4	N 14 44.6						
	04	306 30.5	284 01.7	32.2	57 32.9	56.2	129 28.6	49.3	274 25.4	33.6	Diphda	349 29.3	S 18 09.2						
	05	321 33.0	299 02.3	32.7	72 36.3	56.3	144 31.1	49.3	289 27.6	33.7									
MONDAY	06	336 35.4	314 02.9 N	7 33.2	87 39.6 S	23 56.3	159 33.5 N	2 49.3	304 29.8 N	10 33.8	Dubhe	194 31.9	N 61 55.3						
	07	351 37.9	329 03.5	33.7	102 43.0	56.3	174 35.9	49.2	319 32.0	33.9	Elmath	278 55.0	N 28 35.1						
	08	6 40.3	344 04.1	34.2	117 46.4	56.3	189 38.3	49.2	334 34.2	34.0	Eltanin	91 01.1	N 51 29.3						
	09	21 42.8	359 04.7	.. 34.7	132 49.8	.. 56.3	204 40.8	.. 49.2	349 36.4	.. 34.1	Enif	34 19.7	N 9 43.3						
	10	36 45.3	14 05.3	35.2	147 53.2	56.3	219 43.2	49.1	4 38.6	34.2	Fomalhaut	16 00.5	S 29 47.0						
TUESDAY	11	51 47.7	29 05.9	35.7	162 56.6	56.4	234 45.6	49.1	19 40.8	34.2									
	12	66 50.2	44 06.5 N	7 36.1	177 59.9 S	23 56.4	249 48.1 N	2 49.1	34 43.0 N	10 34.3	Gacrux	172 38.1	S 56 56.8						
	13	81 52.7	59 07.1	36.6	193 03.3	56.4	264 50.5	49.1	49 45.2	34.4	Gienah	176 26.5	S 17 22.5						
	14	96 55.1	74 07.7	37.1	208 06.7	56.4	279 52.9	49.0	64 47.4	34.5	Hadar	149 35.0	S 60 13.8						
	15	111 57.6	89 08.3	.. 37.6	223 10.1	.. 56.4	294 55.3	.. 49.0	79 49.5	.. 34.6	Hamal	328 38.7	N 23 19.0						
WEDNESDAY	16	127 00.1	104 08.8	38.1	238 13.5	56.5	309 57.8	49.0	94 51.7	34.7	Kaus Aust.	84 27.5	S 34 24.1						
	17	142 02.5	119 09.4	38.6	253 16.9	56.5	325 00.2	49.0	109 53.9	34.8									
	18	157 05.0	134 10.0 N	7 39.1	268 20.3 S	23 56.5	340 02.6 N	2 48.9	124 56.1 N	10 34.9	Kochab	137 16.9	N 74 16.9						
	19	172 07.5	149 10.6	39.6	283 23.6	56.5	355 05.0	48.9	139 58.3	35.0	Markab	14 11.6	N 15 02.2						
	20	187 09.9	164 11.2	40.1	298 27.0	56.5	10 07.4	48.9	155 00.5	35.1	Menkar	314 50.2	N 3 58.3						
THURSDAY	21	202 12.4	179 11.7	.. 40.6	313 30.4	.. 56.5	25 09.9	.. 48.8	170 02.7	.. 35.2	Menkent	148 46.6	S 36 13.5						
	22	217 14.8	194 12.3	41.1	328 33.8	56.6	40 12.3	48.8	185 04.9	35.2	Miaplacidus	221 47.5	S 69 35.7						
	23	232 17.3	209 12.9	41.6	343 37.2	56.6	55 14.7	48.8	200 07.1	35.3									
	24	247 19.8	224 13.5 N	7 42.1	358 40.6 S	23 56.6	70 17.1 N	2 48.8	215 09.3 N	10 35.4	Mirfak	309 28.7	N 49 45.5						
	01	262 22.2	239 14.0	42.6	13 44.0	56.6	85 19.6	48.7	230 11.5	35.5	Nunki	76 39.1	S 26 20.3						
FRIDAY	02	277 24.7	254 14.6	43.1	28 47.4	56.6	100 22.0	48.7	245 13.7	35.6	Peacock	54 11.0	S 56 50.0						
	03	292 27.2	269 15.2	.. 43.7	43 50.7	.. 56.6	115 24.4	.. 48.7	260 15.9	.. 35.7	Pollux	244 08.6	N 28 06.3						
	04	307 29.6	284 15.8	44.2	58 54.1	56.7	130 26.8	48.6	275 18.1	35.8	Procyon	245 34.7	N 5 18.4						
	05	322 32.1	299 16.3	44.7	73 57.5	56.7	145 29.2	48.6	290 20.3	35.9									
	06	337 34.6	314 16.9 N	7 45.2	89 00.9 S	23 56.7	160 31.7 N	2 48.6	305 22.4 N	10 36.0	Rasalhague	96 37.0	N 12 34.6						
SATURDAY	07	352 37.0	329 17.5	45.7	104 04.3	56.7	175 34.1	48.5	320 24.6	36.1	Regulus	208 18.8	N 12 07.1						
	08	7 39.5	344 18.0	46.2	119 07.7	56.7	190 36.5	48.5	335 26.8	36.1	Rigel	281 44.3	S 8 14.1						
	09	22 42.0	359 18.6	.. 46.7	134 11.1	.. 56.7	205 38.9	.. 48.5	350 29.0	.. 36.2	Rigel Kent.	140 36.8	S 60 42.8						
	10	37 44.4	14 19.1	47.2	149 14.5	56.7	220 41.3	48.5	5 31.2	36.3	Sabik	102 50.4	S 15 41.5						
	11	52 46.9	29 19.7	47.7	164 17.9	56.8	235 43.8	48.4	20 33.4	36.4									
SUNDAY	12	67 49.3	44 20.3 N	7 48.2	179 21.3 S	23 56.8	250 46.2 N	2 48.4	35 35.6 N	10 36.5	Schedar	350 19.1	N 56 22.0						
	13	82 51.8	59 20.8	48.8	194 24.6	56.8	265 48.6	48.4	50 37.8	36.6	Shaula	97 06.7	S 37 05.1						
	14	97 54.3	74 21.4	49.3	209 28.0	56.8	280 51.0	48.3	65 40.0	36.7	Sirius	259 03.4	S 16 40.3						
	15	112 56.7	89 21.9	.. 49.8	224 31.4	.. 56.8	295 53.4	.. 48.3	80 42.2	.. 36.8	Spica	159 06.1	S 11 00.3						
	16	127 59.2	104 22.5	50.3	239 34.8	56.8	310 55.9	48.3	95 44.4	36.9	Suhail	223 17.2	S 43 18.6						
MONDAY	17	143 01.7	119 23.0	50.8	254 38.2	56.8	325 58.3	48.2	110 46.6	37.0									
	18	158 04.1	134 23.6 N	7 51.3	269 41.6 S	23 56.9	341 00.7 N	2 48.2	125 48.8 N	10 37.0	Vega	81 01.1	N 38 45.0						
	19	173 06.6	149 24.1	51.8	284 45.0	56.9	356 03.1	48.2	140 51.0	37.1	Zuben'ubi	137 42.0	S 15 55.1						
	20	188 09.1	164 24.7	52.4	299 48.4	56.9	11 05.5	48.1	155 53.2	37.2									
	21	203 11.5	179 25.2	.. 52.9	314 51.8	.. 56.9	26 07.9	.. 48.1	170 55.4	.. 37.3									
TUESDAY	22	218 14.0	194 25.8	53.4	329 55.2	56.9	41 10.4	48.1	185 57.6	37.4									
	23	233 16.5	209 26.3	53.9	344 58.6	56.9	56 12.8	48.1	200 59.8	37.5									
	24	248 19.0	224 27.3 N	7 54.4	359 59.7 S	23 57.0	71 19.9 N	2 48.0	215 10.9 N	10 37.6									
Mer. Pass.		h m		v d		v d		v d		v d		v d		v d		S.H.A.		Mer. Pass.	
7 33.4		v 0.6 d 0.5		v 3.4 d 0.0		v 2.4 d 0.0		v 2.2 d 0.1		v 2.2 d 0.1		v 2.2 d 0.1		v 2.2 d 0.1		337 38.7		9 04	
																110 58.8		0 11	
																182 58.3		19 20	
																327 56.1		9 41	

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise										
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	28	29	30	31						
d	h	°	'	°	'	°	'	°	'	h	m	h	m	h	m	h	m					
28	00	180	43-5	N 21	23-9	49	07-1	12-5	S	8	50-3	15-7	58-4	N 72	□	□	□	18 36	■	■	■	
	01	195	43-4		24-3	63	38-6	12-3		9	06-0	15-7	58-4	N 70	□	□	□	18 06	■	■	■	
	02	210	43-4		24-7	78	09-9	12-3		9	21-7	15-7	58-5	68	□	□	□	17 45	20 30	■	■	
	03	225	43-3	..	25-1	92	41-2	12-2		9	37-4	15-6	58-5	66	///	///	01 26	17 28	19 49	■	■	
	04	240	43-2		25-5	107	12-4	12-1		9	53-0	15-6	58-5	64	///	///	02 06	17 15	19 21	22 00	■	
	05	255	43-1		25-9	121	43-5	12-0	10	08-6	15-6	58-6	62	///	///	00 41	02 33	17 03	19 00	21 12	23 57	
	06	270	43-1	N 21	26-3	136	14-5	11-9	S	10	24-2	15-6	58-6	60	///	///	01 36	02 54	16 54	18 43	20 42	22 42
	07	285	43-0		26-8	150	45-4	11-7		10	39-8	15-5	58-6	N 58	///	02 07	03 11	16 45	18 29	20 19	22 06	
	08	300	42-9		27-2	165	16-1	11-7		10	55-3	15-5	58-7	56	00 36	02 30	03 26	16 38	18 16	20 00	21 41	
	09	315	42-8	..	27-6	179	46-8	11-6		11	10-8	15-5	58-7	54	01 27	02 48	03 38	16 32	18 06	19 45	21 21	
WEDNESDAY	10	330	42-8		28-0	194	17-4	11-5		11	26-3	15-4	58-8	52	01 56	03 03	03 49	16 26	17 56	19 31	21 03	
	11	345	42-7		28-4	208	47-9	11-4	11	41-7	15-4	58-8	50	02 17	03 16	03 58	16 21	17 48	19 20	20 48		
	12		0 42-6	N 21	28-8	223	18-3	11-3	S	11	57-1	15-4	58-8	45	02 56	03 43	04 18	16 09	17 31	18 55	20 19	
	13		15 42-5		29-2	237	48-6	11-2	12	12-5	15-3	58-9	N 40	03 23	04 03	04 35	16 00	17 16	18 36	19 56		
	14		30 42-5		29-6	252	18-8	11-1	12	27-8	15-2	58-9	35	03 44	04 19	04 48	15 52	17 04	18 20	19 37		
	15		45 42-4	..	30-0	266	48-9	10-9		12	43-0	15-2	59-0	30	04 01	04 33	05 00	15 45	16 54	18 06	19 20	
	16		60 42-3		30-4	281	18-8	10-9		12	58-2	15-2	59-0	20	04 27	04 56	05 20	15 34	16 36	17 43	18 53	
	17		75 42-2		30-8	295	48-7	10-7	13	13-4	15-1	59-0	N 10	04 48	05 15	05 38	15 23	16 20	17 23	18 30		
	18		90 42-2	N 21	31-2	310	18-4	10-6	S	13	28-5	15-1	59-1	0	05 06	05 31	05 54	15 14	16 06	17 04	18 08	
	19		105 42-1		31-6	324	48-0	10-5		13	43-6	15-0	59-1	S 10	05 21	05 47	06 10	15 04	15 52	16 46	17 46	
THURSDAY	20	120	42-0		31-9	339	17-5	10-4		13	58-6	15-0	59-1	20	05 36	06 03	06 26	14 54	15 37	16 26	17 23	
	21	135	41-9	..	32-3	353	46-9	10-3	14	13-6	14-9	59-2	30	05 51	06 20	06 46	14 43	15 20	16 03	16 56		
	22	150	41-9		32-7	8	16-2	10-2	14	28-5	14-8	59-2	30	05 58	06 29	06 57	14 37	15 10	15 50	16 40		
	23	165	41-8		33-1	22	45-4	10-0	14	43-3	14-8	59-3	40	06 06	06 40	07 10	14 29	14 59	15 35	16 22		
	00	180	41-7	N 21	33-5	37	14-4	9-9	S	14	58-1	14-8	59-3	45	06 16	06 52	07 25	14 21	14 45	15 17	16 00	
	01	195	41-6		33-9	51	43-3	9-8	15	12-9	14-6	59-3	S 50	06 26	07 06	07 44	14 11	14 30	14 55	15 33		
	02	210	41-5		34-3	66	12-1	9-7	15	27-5	14-6	59-4	52	06 30	07 13	07 52	14 06	14 22	14 45	15 19		
	03	225	41-5	..	34-7	80	40-8	9-6	15	42-1	14-5	59-4	54	06 35	07 20	08 02	14 01	14 14	14 33	15 04		
	04	240	41-4		35-1	95	09-4	9-4	15	56-6	14-5	59-4	56	06 40	07 28	08 13	13 55	14 05	14 20	14 46		
	05	255	41-3		35-5	109	37-8	9-3	16	11-1	14-4	59-5	58	06 46	07 37	08 26	13 49	13 54	14 04	14 24		
FRIDAY	06	270	41-2	N 21	35-9	124	06-1	9-2	S	16	25-5	14-3	59-5	S 60	06 52	07 47	08 41	13 42	13 43	13 46	13 56	
	07	285	41-1		36-3	138	34-3	9-0	16	39-8	14-2	59-5	Lat.	Sun-set	Twilight		Moonset					
	08	300	41-1		36-7	153	02-3	8-9	16	54-0	14-2	59-6			Civil	Naut.	28	29	30	31		
	09	315	41-0	..	37-0	167	30-2	8-8	17	08-2	14-0	59-6	°	h m	h m	h m	h m	h m	h m	h m		
	10	330	40-9		37-4	181	58-0	8-7	17	22-2	14-0	59-6	N 72	□	□	□	00 59	■	■	■		
	11	345	40-8		37-8	196	25-7	8-5	17	36-2	13-9	59-7	N 70	□	□	□	00 59	■	■	■		
	12		0 40-7	N 21	38-2	210	53-2	8-4	S	17	50-1	13-9	59-7	68	□	□	□	01 10	■	■	■	
	13		15 40-7		38-6	225	20-6	8-2	18	04-0	13-7	59-8	66	22 32	///	///	///	01 19	01 01	00 31	00 25	
	14		30 40-6		39-0	239	47-8	8-2	18	17-7	13-6	59-8	64	21 51	///	///	///	01 27	01 16	01 00	00 25	
	15		45 40-5	..	39-4	254	15-0	7-9	18	31-3	13-5	59-8	62	21 23	23 22	///	///	01 34	01 28	01 22	01 13	
SATURDAY	16		60 40-4		39-7	268	41-9	7-9	18	44-8	13-5	59-9	60	21 02	22 22	///	///	01 40	01 39	01 40	01 44	
	17		75 40-3		40-1	283	08-8	7-7	18	58-3	13-3	59-9	N 58	20 44	21 50	///	///	01 45	01 49	01 55	02 08	
	18		90 40-2	N 21	40-5	297	35-5	7-6	S	19	11-6	13-3	59-9	56	20 30	21 26	23 25	01 50	01 57	02 08	02 27	
	19		105 40-2		40-9	312	02-1	7-4	19	24-9	13-1	59-9	54	20 17	21 08	22 30	01 54	02 05	02 20	02 43		
	20		120 40-1		41-3	326	28-5	7-3	19	38-0	13-0	60-0	52	20 06	20 52	22 00	01 58	02 11	02 30	02 57		
	21		135 40-0	..	41-6	340	54-8	7-2	19	51-0	13-0	60-0	50	19 57	20 39	21 39	02 01	02 17	02 39	03 09		
	22		150 39-9		42-0	355	21-0	7-0	20	04-0	12-8	60-0	45	19 37	20 13	21 00	02 09	02 31	02 58	03 35		
	23		165 39-8		42-4	9	47-0	6-9	20	16-8	12-7	60-1	N 40	19 20	19 52	20 32	02 15	02 41	03 14	03 55		
	00		180 39-8	N 21	42-8	24	12-9	6-8	S	20	29-5	12-6	60-1	35	19 07	19 36	20 11	02 21	02 51	03 27	04 12	
	01		195 39-7		43-2	38	38-7	6-6	20	42-1	12-4	60-1	30	18 55	19 22	19 54	02 25	02 59	03 39	04 27		
SUNDAY	02		210 39-6		43-5	53	04-3	6-5	20	54-5	12-4	60-2	20	18 35	18 59	19 27	02 34	03 13	03 59	04 52		
	03		225 39-5	..	43-9	67	29-8	6-3	21	06-9	12-2	60-2	N 10	18 17	18 40	19 06	02 41	03 26	04 16	05 13		
	04		240 39-4		44-3	81	55-1	6-2	21	19-1	12-1	60-2	0	18 01	18 23	18 49	02 48	03 38	04 33	05 34		
	05		255 39-3		44-7	96	20-3	6-0	21	31-2	12-0	60-3	S 10	17 45	18 07	18 34	02 55	03 50	04 49	05 54		
	06		270 39-2	N 21	45-0	110	45-3	5-9	S	21	43-2	11-8	60-3	20	17 28	17 52	18 19	03 03	04 03	05 07	06 16	
	07		285 39-2		45-4	125	10-2	5-8	21	55-0	11-7	60-3	30	17 09	17 35	18 04	03 12	04 17	05 28	06 41		
	08		300 39-1		45-8	139	35-0	5-6	22	06-7	11-6	60-3	35	16 57	17 25	17 56	03 17	04 26	05 40	06 57		
	09		315 39-0	..	46-2	153	59-6	5-5	22	18-3	11-4	60-4	40	16 45	17 14	17 48	03 22	04 36	05 54	07 14		
	10		330 38-9																			

G.M.T.		ARIES		VENUS -4.1		MARS -1.9		JUPITER -1.7		SATURN +0.7		STARS		
		G.H.A.		G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d	h													
31	00	248 18.9	224 26.9 N 7 54.4	0 02.0 S 23 56.9	71 15.2 N 2 48.0	216 02.0 N 10 37.6	Acamar	315 43.8	S 40 25.4					
	01	263 21.4	239 27.4 55.0	15 05.4 57.0	86 17.6 48.0	231 04.2 37.7	Achernar	335 51.6	S 57 23.3					
	02	278 23.8	254 28.0 55.5	30 08.8 57.0	101 20.0 48.0	246 06.3 37.8	Acru	173 46.6	S 62 56.1					
	03	293 26.3	269 28.5 56.0	45 12.2 57.0	116 22.4 47.9	261 08.5 37.9	Adhara	255 39.0	S 28 55.8					
	04	308 28.8	284 29.0 56.5	60 15.6 57.0	131 24.9 47.9	276 10.7 37.9	Aldebaran	291 27.9	N 16 27.0					
S	05	323 31.2	299 29.6 57.1	75 19.0 57.0	146 27.3 47.9	291 12.9 38.0								
	06	338 33.7	314 30.1 N 7 57.6	90 22.4 S 23 57.0	161 29.7 N 2 47.8	306 15.1 N 10 38.1	Alloth	166 49.2	N 56 07.7					
	07	353 36.2	329 30.6 58.1	105 25.8 57.0	176 32.1 47.8	321 17.3 38.2	Alkaid	153 24.4	N 49 28.0					
	08	8 38.6	344 31.2 58.6	120 29.2 57.0	191 34.5 47.8	336 19.5 38.3	Al Na'ir	28 25.1	S 47 06.4					
	09	23 41.1	359 31.7 59.2	135 32.5 57.0	206 36.9 47.7	351 21.7 38.4	Alnilam	276 20.4	S 1 13.1					
T	10	38 43.6	14 32.2 7 59.7	150 35.9 57.0	221 39.3 47.7	6 23.9 38.5	Alphard	218 28.9	S 8 31.5					
	11	53 46.0	29 32.8 8 00.2	165 39.3 57.1	236 41.7 47.7	21 26.1 38.6								
	12	68 48.5	44 33.3 N 8 00.7	180 42.7 S 23 57.1	251 44.2 N 2 47.6	36 28.3 N 10 38.6	Alphecca	126 38.7	N 26 48.9					
	13	83 50.9	59 33.8 01.3	195 46.1 57.1	266 46.6 47.6	51 30.5 38.7	Alpheratz	358 18.2	N 28 55.1					
	14	98 53.4	74 34.4 01.8	210 49.5 57.1	281 49.0 47.6	66 32.7 38.8	Altair	62 40.4	N 8 47.0					
R	15	113 55.9	89 34.9 02.3	225 52.9 57.1	296 51.4 47.5	81 34.9 38.9	Ankaa	353 48.4	S 42 28.1					
	16	128 58.3	104 35.4 02.9	240 56.3 57.1	311 53.8 47.5	96 37.1 39.0	Antares	113 06.7	S 26 22.1					
	17	144 00.8	119 35.9 03.4	255 59.7 57.1	326 56.2 47.5	111 39.3 39.1								
	18	159 03.3	134 36.5 N 8 03.9	271 03.1 S 23 57.1	341 58.6 N 2 47.4	126 41.5 N 10 39.2	Arcturus	146 25.7	N 19 20.4					
	19	174 05.7	149 37.0 04.5	286 06.5 57.1	357 01.0 47.4	141 43.7 39.3	Atria	108 38.0	S 68 58.6					
D	20	189 08.2	164 37.5 05.0	301 09.9 57.1	12 03.4 47.3	156 45.9 39.4	Avior	234 32.2	S 59 24.8					
	21	204 10.7	179 38.0 05.5	316 13.3 57.1	27 05.9 47.3	171 48.1 39.4	Bellatrix	279 08.0	N 6 19.5					
	22	219 13.1	194 38.5 06.1	331 16.7 57.2	42 08.3 47.3	186 50.3 39.5	Betelgeuse	271 37.6	N 7 24.3					
	23	234 15.6	209 39.0 06.6	346 20.1 57.2	57 10.7 47.2	201 52.5 39.6								
	I	00	249 18.1	224 39.6 N 8 07.1	1 23.5 S 23 57.2	72 13.1 N 2 47.2	216 54.7 N 10 39.7	Canopus	264 11.4	S 52 40.7				
01		264 20.5	239 40.1 07.7	16 26.9 57.2	87 15.5 47.2	231 56.9 39.8	Capella	281 24.1	N 45 58.2					
02		279 23.0	254 40.6 08.2	31 30.3 57.2	102 17.9 47.1	246 59.1 39.9	Deneb	49 54.0	N 45 09.9					
03		294 25.4	269 41.1 08.8	46 33.7 57.2	117 20.3 47.1	262 01.3 40.0	Denebola	183 07.4	N 14 44.6					
04		309 27.9	284 41.6 09.3	61 37.1 57.2	132 22.7 47.1	277 03.5 40.1	Diphda	349 29.3	S 18 09.2					
S	05	324 30.4	299 42.1 09.8	76 40.5 57.2	147 25.1 47.0	292 05.6 40.2								
	06	339 32.8	314 42.6 N 8 10.4	91 44.0 S 23 57.2	162 27.5 N 2 47.0	307 07.8 N 10 40.2	Dubhe	194 31.9	N 61 55.3					
	07	354 35.3	329 43.1 10.9	106 47.4 57.2	177 29.9 47.0	322 10.0 40.3	Elnath	278 55.0	N 28 35.1					
	08	9 37.8	344 43.6 11.5	121 50.8 57.2	192 32.3 46.9	337 12.2 40.4	Eltanin	91 01.1	N 51 29.3					
	09	24 40.2	359 44.1 12.0	136 54.2 57.2	207 34.8 46.9	352 14.4 40.5	Enif	34 19.7	N 9 43.9					
U	10	39 42.7	14 44.6 12.6	151 57.6 57.2	222 37.2 46.9	7 16.6 40.6	Fomalhaut	16 00.5	S 29 47.0					
	11	54 45.2	29 45.1 13.1	167 01.0 57.2	237 39.6 46.8	22 18.8 40.7								
	12	69 47.6	44 45.6 N 8 13.6	182 04.4 S 23 57.2	252 42.0 N 2 46.8	37 21.0 N 10 40.8	Gacrux	172 38.1	S 56 56.8					
	13	84 50.1	59 46.1 14.2	197 07.8 57.2	267 44.4 46.7	52 23.2 40.9	Gienah	176 26.5	S 17 22.5					
	14	99 52.6	74 46.6 14.7	212 11.2 57.3	282 46.8 46.7	67 25.4 40.9	Hadar	149 35.0	S 60 13.9					
A	15	114 55.0	89 47.1 15.3	227 14.6 57.3	297 49.2 46.7	82 27.6 41.0	Hamal	328 38.6	N 23 19.0					
	16	129 57.5	104 47.6 15.8	242 18.0 57.3	312 51.6 46.6	97 29.8 41.1	Kaus Aust.	84 27.5	S 34 24.1					
	17	144 59.9	119 48.1 16.4	257 21.4 57.3	327 54.0 46.6	112 32.0 41.2								
	18	160 02.4	134 48.6 N 8 16.9	272 24.8 S 23 57.3	342 56.4 N 2 46.6	127 34.2 N 10 41.3	Kochab	137 16.9	N 74 16.9					
	19	175 04.9	149 49.1 17.5	287 28.2 57.3	357 58.8 46.5	142 36.4 41.4	Markab	14 11.5	N 15 02.3					
M	20	190 07.3	164 49.6 18.0	302 31.6 57.3	13 01.2 46.5	157 38.6 41.5	Menkar	314 50.1	N 3 58.3					
	21	205 09.8	179 50.1 18.6	317 35.0 57.3	28 03.6 46.5	172 40.8 41.6	Menkent	148 46.6	S 36 13.5					
	22	220 12.3	194 50.6 19.1	332 38.4 57.3	43 06.0 46.4	187 43.0 41.6	Miaplacidus	221 47.6	S 69 35.7					
	23	235 14.7	209 51.1 19.7	347 41.8 57.3	58 08.4 46.4	202 45.2 41.7								
	2	00	250 17.2	224 51.6 N 8 20.2	2 45.2 S 23 57.3	73 10.8 N 2 46.3	217 47.4 N 10 41.8	Mirfak	309 28.7	N 49 45.2				
01		265 19.7	239 52.0 20.8	17 48.6 57.3	88 13.2 46.3	232 49.6 41.9	Nunki	76 39.1	S 26 20.3					
02		280 22.1	254 52.5 21.3	32 52.0 57.3	103 15.6 46.3	247 51.8 42.0	Peacock	54 10.9	S 56 50.0					
03		295 24.6	269 53.0 21.9	47 55.4 57.3	118 18.0 46.2	262 54.0 42.1	Pollux	244 08.6	N 28 06.3					
04		310 27.1	284 53.5 22.4	62 58.8 57.3	133 20.4 46.2	277 56.2 42.2	Procyon	245 34.7	N 5 18.4					
O	05	325 29.5	299 54.0 23.0	78 02.2 57.3	148 22.8 46.2	292 58.4 42.3								
	06	340 32.0	314 54.5 N 8 23.6	93 05.6 S 23 57.3	163 25.2 N 2 46.1	308 00.6 N 10 42.3	Rasalhague	96 37.0	N 12 34.7					
	07	355 34.4	329 54.9 24.1	108 09.1 57.3	178 27.6 46.1	323 02.8 42.4	Regulus	208 18.9	N 12 07.1					
	08	10 36.9	344 55.4 24.7	123 12.5 57.3	193 30.0 46.0	338 05.0 42.5	Rigel	281 44.3	S 8 14.1					
	09	25 39.4	359 55.9 25.2	138 15.9 57.3	208 32.4 46.0	353 07.2 42.6	Rigel Kent.	140 36.8	S 60 42.8					
M	10	40 41.8	14 56.4 25.8	153 19.3 57.3	223 34.8 46.0	8 09.4 42.7	Sabik	102 50.4	S 15 41.5					
	11	55 44.3	29 56.8 26.3	168 22.7 57.3	238 37.2 45.9	23 11.6 42.8								
	12	70 46.8	44 57.3 N 8 26.9	183 26.1 S 23 57.3	253 39.6 N 2 45.9	38 13.8 N 10 42.9	Schedar	350 19.1	N 56 22.0					
	13	85 49.2	59 57.8 27.5	198 29.5 57.3	268 42.0 45.8	53 16.0 43.0	Shaula	97 06.7	S 37 05.1					
	14	100 51.7	74 58.2 28.0	213 32.9 57.3	283 44.4 45.8	68 18.2 43.0	Sirius	259 03.4	S 16 40.3					
A	15	115 54.2	89 58.7 28.6	228 36.3 57.3	298 46.8 45.8	83 20.4 43.1	Spica	159 06.1	S 11 00.3					
	16	130 56.6	104 59.2 29.1	243 39.7 57.3	313 49.2 45.7	98 22.6 43.2	Suhail	223 17.3	S 43 18.6					
	17	145 59.1	119 59.6 29.7	258 43.1 57.3	328 51.6 45.7	113 24.8 43.3								
	18	161 01.6	135 00.1 N 8 30.3	273 46.5 S 23 57.3	343 54.0 N 2 45.6	128 27.0 N 10 43.4	Vega	81 01.1	N 38 45.0					
	19	176 04.0	150 00.6 30.8	288 49.9 57.3	358 56.4 45.6	143 29.2 43.5	Zuben'ubi	137 42.0	S 15 55.1					
Y	20	191 06.5	165 01.0 31.4	303 53.3 57.3	13 58.8 45.6	158 31.4 43.6								
	21	206 08.9	180 01.5 32.0	318 56.7 57.3	29 01.2 45.5	173 33.6 43.7								
	22	221 11.4	195 02.0 32.5	334 00.1 57.3	44 03.6 45.5	188 35.8 43.7	Venus	335 21.5	9 01					
	23	236 13.9	210 02.4 33.1	349 03.6 57.3	59 06.0 45.4	203 38.0 43.8	Mars	112 05.4	23 49					
							Jupiter	182 55.0	19 08					
							Saturn	327 36.6	9 31					
Mer. Pass.		7 21.6	v 0.5 d 0.5	v 3.4 d 0.0	v 2.4 d 0.0	v 2.2 d 0.1								



	ARIES	VENUS -4-1	MARS -1-9	JUPITER -1-7	SATURN +0-7	STARS
G.M.T.	G.H.A.	G.H.A. Dec.	G.H.A. Dec.	G.H.A. Dec.	G.H.A. Dec.	Name S.H.A. Dec.
d h	° ' "	° ' " ° ' "	° ' " ° ' "	° ' " ° ' "	° ' " ° ' "	
TUESDAY	3 00	251 16-3 225 02-9 N 8 33-7	4 07-0 S 23 57-3	74 08-4 N 2 45-4	218 40-2 N 10 43-9	Acamar 315 43-8 S 40 25-4
	01	266 18-8 240 03-3 34-2	19 10-4 57-3	89 10-8 45-4	233 42-4 44-0	Achernar 335 51-5 S 57 23-2
	02	281 21-3 255 03-8 34-8	34 13-8 57-3	104 13-2 45-3	248 44-6 44-1	Acru 173 46-7 S 62 56-1
	03	296 23-7 270 04-2 35-4	49 17-2 57-3	119 15-6 45-3	263 46-8 44-2	Adhara 255 39-0 S 28 55-7
	04	311 26-2 285 04-7 35-9	64 20-6 57-3	134 18-0 45-2	278 49-0 44-3	Aldebaran 291 27-9 N 16 27-0
	05	326 28-7 300 05-2 36-5	79 24-0 57-3	149 20-4 45-2	293 51-2 44-3	
	06	341 31-1 315 05-6 N 8 37-1	94 27-4 S 23 57-3	164 22-8 N 2 45-2	308 53-4 N 10 44-4	Alioth 166 49-2 N 56 07-7
	07	356 33-6 330 06-1 37-6	109 30-8 57-3	179 25-1 45-1	323 55-6 44-5	Alkaid 153 24-4 N 49 28-0
	08	11 36-1 345 06-5 38-2	124 34-2 57-3	194 27-5 45-1	338 57-8 44-6	Al Na'ir 28 25-1 S 47 06-4
	09	26 38-5 0 07-0 38-8	139 37-6 57-3	209 29-9 45-0	354 00-0 44-7	Alnilam 276 20-4 S 1 13-1
	10	41 41-0 15 07-4 39-4	154 41-0 57-3	224 32-3 45-0	9 02-2 44-8	Alphard 218 28-9 S 8 31-5
	11	56 43-4 30 07-8 39-9	169 44-4 57-3	239 34-7 44-9	24 04-4 44-9	
	12	71 45-9 45 08-3 N 8 40-5	184 47-8 S 23 57-3	254 37-1 N 2 44-9	39 06-6 N 10 45-0	Alphecca 126 38-7 N 26 48-9
	13	86 48-4 60 08-7 41-1	199 51-2 57-3	269 39-5 44-9	54 08-8 45-0	Alpheratz 358 18-1 N 28 55-1
	14	101 50-8 75 09-2 41-7	214 54-6 57-3	284 41-9 44-8	69 11-0 45-1	Altair 62 40-4 N 8 47-0
	15	116 53-3 90 09-6 42-2	229 58-1 57-3	299 44-3 44-8	84 13-2 45-2	Ankaa 353 48-4 S 42 28-1
	16	131 55-8 105 10-1 42-8	245 01-5 57-3	314 46-7 44-7	99 15-4 45-3	Antares 113 06-7 S 26 22-1
	17	146 58-2 120 10-5 43-4	260 04-9 57-3	329 49-1 44-7	114 17-6 45-4	
	18	162 00-7 135 10-9 N 8 44-0	275 08-3 S 23 57-3	344 51-5 N 2 44-7	129 19-8 N 10 45-5	Arcturus 146 25-7 N 19 20-4
	19	177 03-2 150 11-4 44-5	290 11-7 57-3	359 53-8 44-6	144 22-0 45-6	Atria 108 38-0 S 68 58-6
	20	192 05-6 165 11-8 45-1	305 15-1 57-3	14 56-2 44-6	159 24-2 45-6	Avior 234 32-2 S 59 24-8
	21	207 08-1 180 12-2 45-7	320 18-5 57-3	29 58-6 44-5	174 26-4 45-7	Bellatrix 279 08-0 N 6 19-5
	22	222 10-6 195 12-7 46-3	335 21-9 57-3	45 01-0 44-5	189 28-6 45-8	Beteigeuse 271 37-6 N 7 24-3
	23	237 13-0 210 13-1 46-9	350 25-3 57-3	60 03-4 44-4	204 30-8 45-9	
WEDNESDAY	4 00	252 15-5 225 13-5 N 8 47-4	5 28-7 S 23 57-3	75 05-8 N 2 44-4	219 33-0 N 10 46-0	Canopus 264 11-4 S 52 40-7
	01	267 17-9 240 14-0 48-0	20 32-1 57-3	90 08-2 44-4	234 35-2 46-1	Capella 281 24-1 N 45 58-2
	02	282 20-4 255 14-4 48-6	35 35-5 57-3	105 10-6 44-3	249 37-4 46-2	Deneb 49 54-0 N 45 09-9
	03	297 22-9 270 14-8 49-2	50 38-9 57-3	120 13-0 44-3	264 39-6 46-2	Denebola 183 07-4 N 14 44-6
	04	312 25-3 285 15-3 49-8	65 42-3 57-3	135 15-3 44-2	279 41-8 46-3	Diphda 349 29-2 S 18 09-1
	05	327 27-8 300 15-7 50-3	80 45-7 57-3	150 17-7 44-2	294 44-0 46-4	
	06	342 30-3 315 16-1 N 8 50-9	95 49-1 S 23 57-2	165 20-1 N 2 44-1	309 46-2 N 10 46-5	Dubhe 194 31-9 N 61 55-3
	07	357 32-7 330 16-5 51-5	110 52-6 57-2	180 22-5 44-1	324 48-4 46-6	El Nath 278 55-0 N 28 35-1
	08	12 35-2 345 17-0 52-1	125 56-0 57-2	195 24-9 44-0	339 50-7 46-7	Eltanin 91 01-1 N 51 29-3
	09	27 37-7 0 17-4 52-7	140 59-4 57-2	210 27-3 44-0	354 52-9 46-8	Enif 34 19-6 N 9 43-9
	10	42 40-1 15 17-8 53-3	156 02-8 57-2	225 29-7 44-0	9 55-1 46-8	Fomalhaut 16 00-4 S 29 47-0
	11	57 42-6 30 18-2 53-9	171 06-2 57-2	240 32-1 43-9	24 57-3 46-9	
	12	72 45-1 45 18-6 N 8 54-4	186 09-6 S 23 57-2	255 34-4 N 2 43-9	39 59-5 N 10 47-0	Gacrux 172 38-1 S 56 56-8
	13	87 47-5 60 19-1 55-0	201 13-0 57-2	270 36-8 43-8	55 01-7 47-1	Gienah 176 26-5 S 17 22-5
	14	102 50-0 75 19-5 55-6	216 16-4 57-2	285 39-2 43-8	70 03-9 47-2	Hadar 149 35-0 S 60 13-9
	15	117 52-4 90 19-9 56-2	231 19-8 57-2	300 41-6 43-7	85 06-1 47-3	Hamal 328 38-6 N 23 19-0
	16	132 54-9 105 20-3 56-8	246 23-2 57-2	315 44-0 43-7	100 08-3 47-4	Kaus Aust. 84 27-5 S 34 24-1
	17	147 57-4 120 20-7 57-4	261 26-6 57-2	330 46-4 43-6	115 10-5 47-4	
	18	162 59-8 135 21-1 N 8 58-0	276 30-0 S 23 57-2	345 48-7 N 2 43-6	130 12-7 N 10 47-5	Kochab 137 16-9 N 74 16-9
	19	178 02-3 150 21-5 58-6	291 33-4 57-2	0 51-1 43-5	145 14-9 47-6	Markab 14 11-5 N 15 02-3
	20	193 04-8 165 21-9 59-1	306 36-8 57-2	15 53-5 43-5	160 17-1 47-7	Menkar 314 50-1 N 3 58-3
	21	208 07-2 180 22-4 59-7	321 40-2 57-1	30 55-9 43-5	175 19-3 47-8	Menkent 148 46-6 S 36 13-5
	22	223 09-7 195 22-8 00-3	336 43-6 57-1	45 58-3 43-4	190 21-5 47-9	Miapicidus 221 47-6 S 69 35-6
	23	238 12-2 210 23-2 00-9	351 47-0 57-1	61 00-7 43-4	205 23-7 48-0	
THURSDAY	5 00	253 14-6 225 23-6 N 9 01-5	6 50-4 S 23 57-1	76 03-0 N 2 43-3	220 25-9 N 10 48-0	Mirfak 309 28-6 N 49 45-2
	01	268 17-1 240 24-0 02-1	21 53-8 57-1	91 05-4 43-3	235 28-1 48-1	Nunki 76 39-1 S 26 20-3
	02	283 19-5 255 24-4 02-7	36 57-3 57-1	106 07-8 43-2	250 30-3 48-2	Peacock 54 10-9 S 56 50-0
	03	298 22-0 270 24-8 03-3	52 00-7 57-1	121 10-2 43-2	265 32-5 48-3	Pollux 244 08-6 N 28 06-3
	04	313 24-5 285 25-2 03-9	67 04-1 57-1	136 12-6 43-1	280 34-7 48-4	Procyon 245 34-7 N 5 18-4
	05	328 26-9 300 25-6 04-5	82 07-5 57-1	151 15-0 43-1	295 36-9 48-5	
	06	343 29-4 315 26-0 N 9 05-1	97 10-9 S 23 57-1	166 17-3 N 2 43-0	310 39-1 N 10 48-6	Rasalhague 96 36-9 N 12 34-7
	07	358 31-9 330 26-4 05-7	112 14-3 57-1	181 19-7 43-0	325 41-3 48-6	Regulus 208 18-9 N 12 07-1
	08	13 34-3 345 26-8 06-3	127 17-7 57-0	196 22-1 42-9	340 43-5 48-7	Rigel 281 44-3 S 8 14-0
	09	28 36-8 0 27-2 06-9	142 21-1 57-0	211 24-5 42-9	355 45-7 48-8	Rigel Kent. 140 36-8 S 60 42-8
	10	43 39-3 15 27-6 07-5	157 24-5 57-0	226 26-9 42-8	10 47-9 48-9	Sabik 102 50-3 S 15 41-5
	11	58 41-7 30 28-0 08-1	172 27-9 57-0	241 29-2 42-8	25 50-2 49-0	
	12	73 44-2 45 28-3 N 9 08-7	187 31-3 S 23 57-0	256 31-6 N 2 42-8	40 52-4 N 10 49-1	Schedar 350 19-1 N 56 22-0
	13	88 46-7 60 28-7 09-3	202 34-7 57-0	271 34-0 42-7	55 54-6 49-1	Shaula 97 06-7 S 37 05-1
	14	103 49-1 75 29-1 09-9	217 38-1 57-0	286 36-4 42-7	70 56-8 49-2	Sirius 259 03-4 S 16 40-3
	15	118 51-6 90 29-5 10-5	232 41-5 57-0	301 38-7 42-6	85 59-0 49-3	Spica 159 06-1 S 11 00-3
	16	133 54-0 105 29-9 11-1	247 44-9 57-0	316 41-1 42-6	101 01-2 49-4	Suhail 223 17-3 S 43 18-6
	17	148 56-5 120 30-3 11-7	262 48-3 57-0	331 43-5 42-5	116 03-4 49-5	
	18	163 59-0 135 30-7 N 9 12-3	277 51-7 S 23 56-9	346 45-9 N 2 42-5	131 05-6 N 10 49-6	Vega 81 01-1 N 38 45-0
	19	179 01-4 150 31-1 12-9	292 55-1 56-9	1 48-3 42-4	146 07-8 49-7	Zuben'ubi 137 42-0 S 15 55-1
	20	194 03-9 165 31-4 13-5	307 58-5 56-9	16 50-6 42-4	161 10-0 49-7	
	21	209 06-4 180 31-8 14-1	323 01-9 56-9	31 53-0 42-3	176 12-2 49-8	
	22	224 08-8 195 32-2 14-7	338 05-3 56-9	46 55-4 42-3	191 14-4 49-9	
	23	239 11-3 210 32-6 15-3	353 08-7 56-9	61 57-8 42-2	206 16-6 50-0	
	h m					S.H.A. Mer. Pass.
Mer. Pass.	7 09-8	v 0-4 d 0-6	v 3-4 d 0-0	v 2-4 d 0-0	v 2-2 d 0-1	° ' " h m
						Venus 332 58-0 8 59
						Mars 113 13-2 23 33
						Jupiter 182 50-3 18 57
						Saturn 327 17-5 9 20

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise						
		G.H.A.	Dec.	G.H.A.	φ	Dec.	d		H.P.	Naut.		Civil	3	4	5	6		
d	h																	
TUESDAY	3	00	180 31.0	N 22 16.0	322 14.9	2.0	S 27 03.5	6.0	60.8	N 72							02 22	
	01	195 30.9		16.3	336 35.9	2.2	26 57.5	6.3	60.8	N 70						03 02	01 59	
	02	210 30.8		16.6	350 57.1	2.2	26 51.2	6.5	60.8	68						02 19	01 41	
	03	225 30.7		16.9	5 18.3	2.3	26 44.7	6.6	60.8	66			01 00		02 47	01 50	01 27	
	04	240 30.6		17.2	19 39.6	2.5	26 38.1	6.9	60.8	64			01 51		01 51	01 28	01 14	
	05	255 30.4		17.5	34 01.1	2.6	26 31.2	7.0	60.7	62			02 22	01 31	01 17	01 10	01 04	
	06	270 30.3	N 22 17.9	48 22.7	2.6	S 26 24.2	7.3	60.7	N 58			03 04	00 13	00 33	00 42	00 48		
	07	285 30.2		18.2	62 44.3	2.8	26 16.9	7.4	60.7	56		02 55	03 19	24 16	00 16	00 31	00 41	
	08	300 30.1		18.5	77 06.1	2.9	26 09.5	7.6	60.7	54	01 11	02 41	03 32	24 02	00 02	00 21	00 34	
	09	315 30.0		18.8	91 28.0	3.1	26 01.9	7.8	60.7	52	01 45	02 57	03 44	23 50	24 13	00 13	00 29	
	10	330 29.9		19.1	105 50.1	3.1	25 54.1	7.9	60.6	50	02 09	03 11	03 54	23 39	24 05	00 05	00 24	
	11	345 29.8		19.4	120 12.2	3.3	25 46.2	8.2	60.6	45	02 51	03 39	04 15	23 16	23 48	24 13	00 13	
	12	0	29.7	N 22 19.7	134 34.5	3.4	S 25 38.0	8.3	60.6	N 40	03 19	04 00	04 32	22 57	23 34	24 03	00 03	
	13	15	29.6		20.0	148 56.9	3.5	25 29.7	8.5	60.6	35	03 41	04 17	04 46	22 42	23 22	23 56	24 24
	14	30	29.5		20.3	163 19.4	3.6	25 21.2	8.7	60.6	30	03 59	04 32	04 59	22 28	23 12	23 49	24 20
	15	45	29.4		20.6	177 42.0	3.8	25 12.5	8.8	60.5	20	04 26	04 55	05 20	22 05	22 54	23 36	24 14
	16	60	29.3		20.9	192 04.8	3.9	25 03.7	9.0	60.5	N 10	04 48	05 15	05 38	21 45	22 38	23 26	24 08
	17	75	29.2		21.2	206 27.7	4.0	24 54.7	9.2	60.5	0	05 06	05 32	05 55	21 26	22 23	23 16	24 03
	18	90	29.1	N 22 21.5	220 50.7	4.2	S 24 45.5	9.3	60.5	S 10	05 22	05 49	06 11	21 07	22 09	23 05	23 58	
	19	105	29.0		21.8	235 13.9	4.3	24 36.2	9.5	60.4	20	05 38	06 05	06 29	20 46	21 53	22 55	23 52
	20	120	28.9		22.1	249 37.2	4.4	24 26.7	9.7	60.4	30	05 53	06 23	06 49	20 23	21 34	22 42	23 46
	21	135	28.8		22.4	264 00.6	4.6	24 17.0	9.8	60.4	35	06 01	06 33	07 01	20 09	21 24	22 35	23 42
	22	150	28.7		22.7	278 24.2	4.7	24 07.2	10.0	60.4	40	06 10	06 44	07 14	19 52	21 11	22 27	23 38
	23	165	28.6		23.0	292 47.9	4.8	23 57.2	10.1	60.3	45	06 20	06 57	07 30	19 33	20 57	22 17	23 33
WEDNESDAY	4	00	180 28.5	N 22 23.3	307 11.7	5.0	S 23 47.1	10.3	60.3	S 50	06 31	07 12	07 50	19 09	20 38	22 05	23 27	
	01	195 28.4		23.6	321 35.7	5.1	23 36.8	10.4	60.3	52	06 36	07 19	07 59	18 57	20 30	22 00	23 24	
	02	210 28.3		23.9	335 59.8	5.2	23 26.4	10.6	60.3	54	06 41	07 26	08 09	18 43	20 20	21 53	23 21	
	03	225 28.2		24.2	350 24.0	5.4	23 15.8	10.7	60.2	56	06 47	07 35	08 21	18 28	20 09	21 47	23 18	
	04	240 28.1		24.5	4 48.4	5.5	23 05.1	10.9	60.2	58	06 53	07 44	08 35	18 09	19 57	21 39	23 14	
	05	255 28.0		24.8	19 12.9	5.7	22 54.2	11.0	60.2	S 60	07 00	07 55	08 51	17 46	19 42	21 30	23 10	
	06	270 27.9	N 22 25.1	33 37.6	5.8	S 22 43.2	11.1	60.2										
	07	285 27.8		25.4	48 02.4	5.9	22 32.1	11.3	60.1									
	08	300 27.7		25.7	62 27.3	6.1	22 20.8	11.3	60.1									
	09	315 27.6		26.0	76 52.4	6.2	22 09.5	11.6	60.1									
	10	330 27.5		26.3	91 17.6	6.4	21 57.9	11.6	60.1									
	11	345 27.3		26.6	105 43.0	6.5	21 46.3	11.8	60.0									
	12	0	27.2	N 22 26.9	120 08.5	6.6	S 21 34.5	11.9	60.0									
	13	15	27.1		27.1	134 34.1	6.7	21 22.6	12.1	60.0								
	14	30	27.0		27.4	148 59.8	6.9	21 10.5	12.1	59.9								
	15	45	26.9		27.7	163 25.7	7.1	20 58.4	12.3	59.9								
	16	60	26.8		28.0	177 51.8	7.2	20 46.1	12.3	59.9								
	17	75	26.7		28.3	192 18.0	7.3	20 33.8	12.5	59.8								
	18	90	26.6	N 22 28.6	206 44.3	7.4	S 20 21.3	12.6	59.8	N 58	20 53	22 03		05 10	07 00	08 46	10 25	
	19	105	26.5		28.9	221 10.7	7.6	20 08.7	12.7	59.8	56	20 38	21 37		05 33	07 15	08 56	10 31
	20	120	26.4		29.1	235 37.3	7.8	19 56.0	12.9	59.8	54	20 25	21 17	22 47	05 52	07 29	09 05	10 36
	21	135	26.3		29.4	250 04.1	7.8	19 43.1	12.9	59.7	52	20 13	21 00	22 13	06 08	07 41	09 13	10 40
	22	150	26.2		29.7	264 30.9	8.0	19 30.2	13.0	59.7	50	20 03	20 46	21 48	06 21	07 51	09 20	10 45
	23	165	26.1		30.0	278 57.9	8.1	19 17.2	13.1	59.7	45	19 42	20 18	21 07	06 49	08 13	09 35	10 54
THURSDAY	5	00	180 26.0	N 22 30.3	293 25.0	8.3	S 19 04.1	13.2	59.6	N 40	19 25	19 57	20 38	07 11	08 30	09 48	11 01	
	01	195 25.9		30.6	307 52.3	8.4	18 50.9	13.4	59.6	35	19 10	19 40	20 16	07 29	08 45	09 58	11 07	
	02	210 25.8		30.8	322 19.7	8.5	18 37.5	13.4	59.6	30	18 58	19 25	19 58	07 44	08 57	10 07	11 13	
	03	225 25.6		31.1	336 47.2	8.7	18 24.1	13.5	59.5	20	18 37	19 01	19 30	08 10	09 18	10 23	11 23	
	04	240 25.5		31.4	351 14.9	8.7	18 10.6	13.5	59.5	N 10	18 19	18 42	19 08	08 32	09 37	10 36	11 31	
	05	255 25.4		31.7	5 42.6	8.9	17 57.1	13.7	59.5	0	18 02	18 24	18 50	08 53	09 54	10 49	11 39	
	06	270 25.3	N 22 32.0	20 10.5	9.1	S 17 43.4	13.8	59.4										
	07	285 25.2		32.2	34 38.6	9.1	17 29.6	13.8	59.4	S 10	17 45	18 08	18 34	09 14	10 11	11 01	11 46	
	08	300 25.1		32.5	49 06.7	9.3	17 15.8	13.9	59.4	20	17 28	17 51	18 19	09 36	10 29	11 14	11 54	
	09	315 25.0		32.8	63 35.0	9.4	17 01.9	14.0	59.3	30	17 07	17 33	18 03	10 01	10 49	11 29	12 04	
	10	330 24.9		33.1	78 03.4	9.6	16 47.9	14.1	59.3	35	16 56	17 24	17 55	10 16	11 01	11 38	12 09	
	11	345 24.8		33.3	92 32.0	9.6	16 33.8	14.2	59.3	40	16 42	17 12	17 46	10 33	11 15	11 48	12 15	
	12	0	24.7	N 22 33.6	107 00.6	9.8	S 16 19.6	14.2	59.2	45	16 26	17 00	17 36	10 53	11 31	11 59	12 22	
	13	15	24.6		33.9	121 29.4	9.9	16 05.4	14.3	59.2	S 50	16 07	16 45	17 25	11 19	11 50	12 13	12 30
	14	30	24.4		34.1	135 58.3	10.0	15 51.1	14.4	59.2	52	15 57	16 37	17 21	11 31	12 00	12 19	12 33
	15	45	24.3		34.4	150 27.3	10.2	15 36.7	14.4	59.1	54	15 47	16 30	17 15	11 45	12 10	12 26	12 37
	16	60	24.2		34.7	164 56.5	10.2	15 22.3	14.5	59.1	56	15 35	16 21	17 10	12 01	12 22	12 34	12 42
	17	75	24.1		35.0	179 25.7	10.4	15 07.8	14.6	59.1	58	15 21	16 12	17 03	12 20	12 35	12 43	12 47
	18	90	24.0	N 22 35.2	193 55.1	10.4	S 14 53.2	14.6	59.0	S 60	15 05	16 01	16 57	12 44	12 51	12 52	12 53	
	19	105	23.9		35.5	208 24.5	10.6	14 38.6	14.7	59.0								
	20	120	23.8		35.8	222 54.1	10.7	14 23.9	14.7	59.0								
	21	135	23.7		36.0	237 23.8	10.8	14 09.2	14.8	58.9								
	22	150	23.6		36.3	251 53.6	11.0	13 54.4	14.9	58.9								
	23	165	23.4		36.6	266 23.6	11.0	13 39.5	14.9	58.9								
		S.D. 15.8		d 0.3	S.D. 16.5		16.3	16.1										
										Day	SUN		MOON					
											Eqn. of Time	Mer. Pass.	Mer. Upper	Pass. Lower	Age	Phase		
											00 ^h	12 ^h						
											m s	m s	h m	h m	h m	d		
										3	02 04	01 59	11 58	02 38	15 10	18		
										4	01 54	01 49	11 58	03 40	16 09	19		
										5	01 44	01 39	11 58	04 36	17 02	20		

G.M.T.	ARIES			VENUS -4.1			MARS -1.9			JUPITER -1.7			SATURN +0.7			STARS		
	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /		o /	o /
6 00	254 13.8	225 33.0	N 9 15.9	8 12.1	S 23 56.9		77 00.1	N 2 42.2	221 18.8	N 10 50.1		Acamar	315 43.8	S 40 25.4				
01	269 16.2	240 33.4	16.5	23 15.5	56.9		92 02.5	42.1	236 21.0	50.2		Achernar	335 51.5	S 57 23.2				
02	284 18.7	255 33.7	17.1	38 18.9	56.8		107 04.9	42.1	251 23.2	50.2		Arcturus	173 46.7	S 62 56.1				
03	299 21.2	270 34.1	17.7	53 22.3	56.8		122 07.3	42.0	266 25.4	50.3		Adhara	255 39.0	S 28 55.7				
04	314 23.6	285 34.5	18.3	68 25.7	56.8		137 09.6	42.0	281 27.6	50.4		Aldebaran	291 27.9	N 16 27.0				
05	329 26.1	300 34.9	18.9	83 29.1	56.8		152 12.0	41.9	296 29.9	50.5								
06	344 28.5	315 35.2	N 9 19.5	98 32.5	S 23 56.8		167 14.4	N 2 41.9	311 32.1	N 10 50.6		Alioth	166 49.2	N 56 07.7				
07	359 31.0	330 35.6	20.1	113 35.9	56.8		182 16.8	41.8	326 34.3	50.7		Alkaid	153 24.5	N 49 28.0				
08	14 33.5	345 36.0	20.7	128 39.3	56.8		197 19.1	41.8	341 36.5	50.7		Al Na'ir	28 25.0	S 47 06.4				
F 09	29 35.9	0 36.3	21.4	143 42.7	56.8		212 21.5	41.7	356 38.7	50.8		Alnilam	276 20.4	S 1 13.1				
R 10	44 38.4	15 36.7	22.0	158 46.1	56.7		227 23.9	41.7	11 40.9	50.9		Alphard	218 28.9	S 8 31.5				
I 11	59 40.9	30 37.1	22.6	173 49.5	56.7		242 26.3	41.6	26 43.1	51.0								
D 12	74 43.3	45 37.4	N 9 23.2	188 52.9	S 23 56.7		257 28.6	N 2 41.6	41 45.3	N 10 51.1		Alphecca	126 38.7	N 26 48.9				
A 13	89 45.8	60 37.8	23.8	203 56.3	56.7		272 31.0	41.5	56 47.5	51.2		Alpheratz	358 18.1	N 28 55.1				
Y 14	104 48.3	75 38.2	24.4	218 59.6	56.7		287 33.4	41.5	71 49.7	51.2		Altair	62 40.4	N 8 47.0				
15	119 50.7	90 38.5	25.0	234 03.0	56.7		302 35.7	41.4	86 51.9	51.3		Ankaa	353 48.4	S 42 28.1				
16	134 53.2	105 38.9	25.6	249 06.4	56.7		317 38.1	41.4	101 54.1	51.4		Antares	113 06.7	S 26 22.1				
17	149 55.7	120 39.3	26.2	264 09.8	56.6		332 40.5	41.3	116 56.3	51.5								
18	164 58.1	135 39.6	N 9 26.8	279 13.2	S 23 56.6		347 42.9	N 2 41.3	131 58.5	N 10 51.6		Arcturus	146 25.7	N 19 20.4				
19	180 00.6	150 40.0	27.5	294 16.6	56.6		2 45.2	41.2	147 00.8	51.7		Atria	108 38.0	S 68 58.6				
20	195 03.0	165 40.3	28.1	309 20.0	56.6		17 47.6	41.2	162 03.0	51.7		Avior	234 32.3	S 59 24.7				
21	210 05.5	180 40.7	28.7	324 23.4	56.6		32 50.0	41.1	177 05.2	51.8		Bellatrix	279 08.0	N 6 19.5				
22	225 08.0	195 41.1	29.3	339 26.8	56.6		47 52.3	41.1	192 07.4	51.9		Betelgeuse	271 37.6	N 7 24.3				
23	240 10.4	210 41.4	29.9	354 30.2	56.6		62 54.7	41.0	207 09.6	52.0								
7 00	255 12.9	225 41.8	N 9 30.5	9 33.6	S 23 56.5		77 57.1	N 2 41.0	222 11.8	N 10 52.1		Canopus	264 11.4	S 52 40.7				
01	270 15.4	240 42.1	31.1	24 37.0	56.5		92 59.4	40.9	237 14.0	52.2		Capella	281 24.1	N 45 58.2				
02	285 17.8	255 42.5	31.8	39 40.4	56.5		108 01.8	40.8	252 16.2	52.2		Deneb	49 54.0	N 45 09.9				
03	300 20.3	270 42.8	32.4	54 43.8	56.5		123 04.2	40.8	267 18.4	52.3		Denebola	183 07.4	N 14 44.6				
04	315 22.8	285 43.2	33.0	69 47.2	56.5		138 06.5	40.7	282 20.6	52.4		Diphda	349 29.2	S 18 09.1				
05	330 25.2	300 43.5	33.6	84 50.6	56.5		153 08.9	40.7	297 22.8	52.5								
06	345 27.7	315 43.9	N 9 34.2	99 53.9	S 23 56.4		168 11.3	N 2 40.6	312 25.0	N 10 52.6		Dubhe	194 31.9	N 61 55.3				
07	0 30.2	330 44.2	34.8	114 57.3	56.4		183 13.7	40.6	327 27.2	52.7		Elnath	278 55.0	N 28 35.1				
08	15 32.6	345 44.6	35.5	130 00.7	56.4		198 16.0	40.5	342 29.5	52.7		Eltanin	91 01.0	N 51 29.3				
09	30 35.1	0 44.9	36.1	145 04.1	56.4		213 18.4	40.5	357 31.7	52.8		Enif	34 19.6	N 9 43.9				
10	45 37.5	15 45.3	36.7	160 07.5	56.4		228 20.8	40.4	12 33.9	52.9		Fomalhaut	16 00.4	S 29 47.0				
11	60 40.0	30 45.6	37.3	175 10.9	56.4		243 23.1	40.4	27 36.1	53.0								
12	75 42.5	45 46.0	N 9 37.9	190 14.3	S 23 56.3		258 25.5	N 2 40.3	42 38.3	N 10 53.1		Gacrux	172 38.1	S 56 56.8				
13	90 44.9	60 46.3	38.6	205 17.7	56.3		273 27.8	40.3	57 40.5	53.2		Gienah	176 26.5	S 17 22.5				
14	105 47.4	75 46.6	39.2	220 21.1	56.3		288 30.2	40.2	72 42.7	53.2		Hadar	149 35.0	S 60 13.9				
15	120 49.9	90 47.0	39.8	235 24.4	56.3		303 32.6	40.2	87 44.9	53.3		Hamal	328 38.6	N 23 19.1				
16	135 52.3	105 47.3	40.4	250 27.8	56.3		318 34.9	40.1	102 47.1	53.4		Kaus Aust.	84 27.4	S 34 24.1				
17	150 54.8	120 47.6	41.0	265 31.2	56.3		333 37.3	40.1	117 49.3	53.5								
18	165 57.3	135 48.0	N 9 41.7	280 34.6	S 23 56.2		348 39.7	N 2 40.0	132 51.5	N 10 53.6		Kochab	137 17.0	N 74 16.9				
19	180 59.7	150 48.3	42.3	295 38.0	56.2		3 42.0	39.9	147 53.8	53.6		Markab	14 11.5	N 15 02.3				
20	196 02.2	165 48.7	42.9	310 41.4	56.2		18 44.4	39.9	162 56.0	53.7		Menkar	314 50.1	N 3 58.3				
21	211 04.6	180 49.0	43.5	325 44.8	56.2		33 46.8	39.8	177 58.2	53.8		Menkent	148 46.6	S 36 13.5				
22	226 07.1	195 49.3	44.2	340 48.1	56.2		48 49.1	39.8	193 00.4	53.9		Miaplacidus	221 47.6	S 69 35.6				
23	241 09.6	210 49.7	44.8	355 51.5	56.1		63 51.5	39.7	208 02.6	54.0								
8 00	256 12.0	225 50.0	N 9 45.4	10 54.9	S 23 56.1		78 53.9	N 2 39.7	223 04.8	N 10 54.1		Mirfak	309 28.6	N 49 45.2				
01	271 14.5	240 50.3	46.0	25 58.3	56.1		93 56.2	39.6	238 07.0	54.1		Nunki	76 39.1	S 26 20.3				
02	286 17.0	255 50.6	46.7	41 01.7	56.1		108 58.6	39.6	253 09.2	54.2		Peacock	54 10.9	S 56 50.0				
03	301 19.4	270 51.0	47.3	56 05.1	56.1		124 00.9	39.5	268 11.4	54.3		Pollux	244 08.6	N 28 06.3				
04	316 21.9	285 51.3	47.9	71 08.5	56.1		139 03.3	39.5	283 13.6	54.4		Procyon	245 34.7	N 5 18.4				
05	331 24.4	300 51.6	48.5	86 11.8	56.0		154 05.7	39.4	298 15.9	54.5								
06	346 26.8	315 51.9	N 9 49.2	101 15.2	S 23 56.0		169 08.0	N 2 39.3	313 18.1	N 10 54.6		Rasalhague	96 36.9	N 12 34.7				
07	1 29.3	330 52.3	49.8	116 18.6	56.0		184 10.4	39.3	328 20.3	54.6		Regulus	208 18.9	N 12 07.1				
08	16 31.7	345 52.6	50.4	131 22.0	56.0		199 12.7	39.2	343 22.5	54.7		Rigel	281 44.3	S 8 14.0				
09	31 34.2	0 52.9	51.1	146 25.4	56.0		214 15.1	39.2	358 24.7	54.8		Rigel Kent.	140 36.8	S 60 42.8				
10	46 36.7	15 53.2	51.7	161 28.7	55.9		229 17.5	39.1	13 26.9	54.9		Sabik	102 50.3	S 15 41.5				
11	61 39.1	30 53.6	52.3	176 32.1	55.9		244 19.8	39.1	28 29.1	55.0								
12	76 41.6	45 53.9	N 9 52.9	191 35.5	S 23 55.9		259 22.2	N 2 39.0	43 31.3	N 10 55.0		Schedar	350 19.0	N 56 22.0				
13	91 44.1	60 54.2	53.6	206 38.9	55.9		274 24.5	39.0	58 33.5	55.1		Shaula	97 06.4	S 37 05.1				
14	106 46.5	75 54.5	54.2	221 42.2	55.9		289 26.9	38.9	73 35.7	55.2		Sirius	259 03.4	S 16 40.3				
15	121 49.0	90 54.8	54.8	236 45.6	55.8		304 29.3	38.8	88 38.0	55.3		Spica	159 06.1	S 11 00.3				
16	136 51.5	105 55.1	55.5	251 49.0	55.8		319 31.6	38.8	103 40.2	55.4		Suhail	223 17.3	S 43 18.6				
17	151 53.9	120 55.5	56.1	266 52.4	55.8		334 34.0	38.7	118 42.4	55.5								
18	166 56.4	135 55.8	N 9 56.7	281 55.8	S 23 55.8		349 36.3	N 2 38.7	133 44.6	N 10 55.5		Vega	81 01.1	N 38 45.0				
19	181 58.9	150 56.1	57.4	296 59.1	55.7		4 38.7	38.6	148 46.8	55.6		Zuben'ubi	137 42.0	S 15 55.1				
20	197 01.3	165 56.4	58.0	312 02.5	55.7		19 41.0	38.6	163 49.0	55.7								
21	212 03.8	180 56.7	58.6	327 05.9	55.7		34 43.4	38.5	178 51.2	55								

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise						
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	6	7	8	9		
d	h	°	'	°	'	°	'	°	'	h	m	h	m	h	m	h	m	
6	00	180	23.3	N 22	36.8	280	53.6	11.1	S 13	24.6	14.9	58.8	N 70	02 22	01 34	00 58	{23 23}	
	01	195	23.2		37.1	295	23.7	11.3		13	09.7	15.0	68	01 59	01 24	00 57	00 30	
	02	210	23.1		37.4	309	54.0	11.3		12	54.7	15.1	66	01 41	01 16	00 56	00 36	
	03	225	23.0		37.6	324	24.3	11.4		12	39.6	15.1	64	01 27	01 10	00 55	00 41	
	04	240	22.9		37.9	338	54.7	11.6		12	24.5	15.1	62	01 14	01 04	00 54	00 45	
	05	255	22.8		38.1	353	25.3	11.6		12	09.4	15.2	60	01 04	00 59	00 54	00 49	
06	270	22.7	N 22	38.4	7	55.9	11.7	S 11	54.2	15.3	58.6	N 58	01 50	00 51	00 53	00 55		
F R I	07	285	22.6		38.7	22	26.6	11.9		11	38.9	15.2	56	02 17	00 47	00 53	00 58	
	08	300	22.4		38.9	36	57.5	11.9		11	23.7	15.3	54	02 38	00 44	00 52	01 00	
	09	315	22.3		39.2	51	28.4	12.0		11	08.4	15.4	52	03 09	00 41	00 52	01 02	
	10	330	22.2		39.4	65	59.4	12.1		10	53.0	15.4	50	03 37	00 39	00 52	01 04	
	11	345	22.1		39.7	80	30.5	12.2		10	37.6	15.4	45	04 08	00 33	00 51	01 08	
	12	0	22.0	N 22	40.0	95	01.7	12.3	S 10	22.2	15.4	58.4	N 40	03 18	00 28	00 50	01 12	
D A Y	13	15	21.9		40.2	109	33.0	12.4		10	06.8	15.5	35	03 40	00 24	00 50	01 15	
	14	30	21.8		40.5	124	04.4	12.4		9	51.3	15.5	30	03 58	00 20	00 50	01 18	
	15	45	21.7		40.7	138	35.8	12.6		9	35.8	15.5	20	04 26	00 14	00 49	01 23	
	16	60	21.5		41.0	153	07.4	12.6		9	20.3	15.6	N 10	04 48	00 08	00 48	01 27	
	17	75	21.4		41.2	167	39.0	12.7		9	04.7	15.6	0	05 07	00 03	00 48	01 31	
	18	90	21.3	N 22	41.5	182	10.7	12.8	S	8	49.1	15.6	S 10	05 23	23 58	24 47	01 35	
19	105	21.2		41.7	196	42.5	12.9		8	33.5	15.6	20	05 39	23 52	24 47	01 40		
20	120	21.1		42.0	211	14.4	12.9		8	17.9	15.7	30	05 55	23 46	24 46	01 45		
21	135	21.0		42.2	225	46.3	13.0		8	02.2	15.6	35	06 03	23 42	24 46	01 48		
22	150	20.9		42.5	240	18.3	13.1		7	46.6	15.7	40	06 12	23 38	24 45	01 51		
23	165	20.7		42.7	254	50.4	13.2		7	30.9	15.7	45	06 22	23 33	24 45	01 55		
7	00	180	20.6	N 22	43.0	269	22.6	13.2	S	7	15.2	15.7	S 50	06 33	23 27	24 44	02 00	
	01	195	20.5		43.2	283	54.8	13.3		6	59.5	15.8	52	06 38	23 24	24 44	02 02	
	02	210	20.4		43.5	298	27.1	13.4		6	43.7	15.7	54	06 43	23 21	24 44	02 04	
	03	225	20.3		43.7	312	59.5	13.4		6	28.0	15.8	56	06 49	23 18	24 44	02 07	
	04	240	20.2		44.0	327	31.9	13.5		6	12.2	15.7	58	06 55	23 14	24 43	02 10	
	05	255	20.0		44.2	342	04.4	13.5		5	56.5	15.8	S 60	07 03	23 10	24 43	02 13	
06	270	19.9	N 22	44.5	356	36.9	13.7	S	5	40.7	15.8							
S A T	07	285	19.8		44.7	11	09.6	13.6		5	24.9	15.8						
	08	300	19.7		45.0	25	42.2	13.8		5	09.1	15.8						
	09	315	19.6		45.2	40	15.0	13.8		4	53.3	15.8						
	10	330	19.5		45.4	54	47.8	13.8		4	37.5	15.8						
	11	345	19.4		45.7	69	20.6	13.9		4	21.7	15.8						
	12	0	19.2	N 22	45.9	83	53.5	14.0	S	4	05.9	15.8	N 72	07 14	09 03	11 29	13 41	
U R D	13	15	19.1		46.2	98	26.5	14.0		3	50.1	15.8	N 70	07 21	09 23	11 35	13 37	
	14	30	19.0		46.4	112	59.5	14.1		3	34.3	15.7	68	07 28	09 39	11 41	13 34	
	15	45	18.9		46.6	127	32.6	14.1		3	18.6	15.8	66	23 16	09 51	11 45	13 32	
	16	60	18.8		46.9	142	05.7	14.1		3	02.8	15.8	64	22 14	10 02	11 49	13 29	
	17	75	18.7		47.1	156	38.8	14.2		2	47.0	15.8	62	21 41	10 11	11 52	13 28	
	18	90	18.5	N 22	47.4	171	12.0	14.3	S	2	31.2	15.8	60	21 16	10 18	11 55	13 26	
19	105	18.4		47.6	185	45.3	14.3		2	15.4	15.8	N 58	20 57	10 25	11 57	13 25		
20	120	18.3		47.8	200	18.6	14.3		2	59.6	15.7	56	20 41	10 31	11 59	13 24		
21	135	18.2		48.1	214	51.9	14.4		1	43.9	15.8	54	20 28	10 36	12 01	13 22		
22	150	18.1		48.3	229	25.3	14.4		1	28.1	15.7	52	20 16	10 40	12 03	13 21		
23	165	17.9		48.5	243	58.7	14.4		1	12.4	15.7	50	20 06	10 45	12 04	13 21		
8	00	180	17.8	N 22	48.8	258	32.1	14.5	S	0	56.7	15.8	N 40	19 26	11 01	12 10	13 17	
	01	195	17.7		49.0	273	05.6	14.5		0	40.9	15.7	35	19 12	11 07	12 13	13 16	
	02	210	17.6		49.2	287	39.1	14.6		0	25.2	15.6	30	18 59	11 13	12 15	13 14	
	03	225	17.5		49.5	302	12.7	14.5	S	0	09.6	15.7	20	18 38	11 23	12 19	13 12	
	04	240	17.4		49.7	316	46.2	14.7	N	0	06.1	15.7	N 10	18 19	11 31	12 22	13 10	
	05	255	17.2		49.9	331	19.9	14.6		0	21.8	15.6	0	18 02	11 39	12 25	13 08	
06	270	17.1	N 22	50.1	345	53.5	14.7	N	0	37.4	15.6	S 10	17 46	11 46	12 28	13 07		
07	285	17.0		50.4	0	27.2	14.6		0	53.0	15.6	20	17 28	11 54	12 31	13 05		
08	300	16.9		50.6	15	00.8	14.8		1	08.6	15.6	30	17 07	12 04	12 34	13 03		
09	315	16.8		50.8	29	34.6	14.7		1	24.2	15.6	35	16 55	12 09	12 36	13 01		
10	330	16.6		51.0	44	08.3	14.8		1	39.8	15.5	40	16 41	12 15	12 38	13 00		
11	345	16.5		51.3	58	42.1	14.7		1	55.3	15.5	45	16 25	12 22	12 41	12 58		
12	0	16.4	N 22	51.5	73	15.8	14.8	N	2	10.8	15.5	S 50	16 05	12 30	12 44	12 56		
13	15	16.3		51.7	87	49.6	14.9		2	26.3	15.4	52	15 56	12 37	12 45	12 55		
14	30	16.2		51.9	102	23.5	14.8		2	41.7	15.5	54	15 45	12 42	12 46	12 54		
15	45	16.0		52.2	116	57.3	14.8		2	57.2	15.4	56	15 33	12 47	12 48	12 53		
16	60	15.9		52.4	131	31.1	14.9		3	12.6	15.3	58	15 19	12 53	12 50	12 52		
17	75	15.8		52.6	146	05.0	14.9		3	27.9	15.4	S 60	15 02	12 59	12 52	12 51		
18	90	15.7	N 22	52.8	160	38.9	14.9	N	3	43.3	15.3							
19	105	15.6		53.0	175	12.8	14.9		3	58.6	15.3							
20	120	15.4		53.3	189	46.7	14.9		4	13.9	15.2							
21	135	15.3		53.5	204	20.6	14.9		4	29.1	15.2							
22	150	15.2		53.7	218	54.5	14.9		4	44.3	15.2							
23	165	15.1		53.9	233	28.4	14.9		4	59.5	15.2							
		S.D. 15.8	<i>d</i>	0.2	S.D. 15.9		15.7		15.5									
										SUN		MOON						
										Day	Eqn. of Time 00 ^h	Mer. Pass. 12 ^h	Mer. Pass. Upper	Mer. Pass. Lower	Age	Phase		
										6	m s	m s	h m	h m	h m	d		
										7	01 34	01 28	11 59	05 27	17 51	21		
										8	01 23	01 17	11 59	06 14	18 36	22		
											01 12	01 06	11 59	06 58	19 20	23		



		ARIES		VENUS -4.0		MARS -1.9		JUPITER -1.7		SATURN +0.7		STARS								
G.M.T.		G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.					
d	h	°	'	"	°	'	°	'	°	'	°	'		°	'					
9	00	257	11.2		225	57.6	N 10	00.5	12	16.0	S 23	55.6	79	50.5	N 2 38.3					
	01	272	13.6		240	57.9		01.2	27	19.4		55.6	94	52.8	38.3					
	02	287	16.1		255	58.2		01.8	42	22.8		55.6	109	55.2	38.2					
	03	302	18.6		270	58.5		02.4	57	26.1		55.6	124	57.5	38.2					
	04	317	21.0		285	58.8		03.1	72	29.5		55.5	139	59.9	38.1					
05	332	23.5		300	59.1		03.7	87	32.9		55.5	155	02.3	38.0						
06	347	26.0		315	59.4	N 10	04.3	102	36.2	S 23	55.5	170	04.6	N 2 38.0						
07	2	28.4		330	59.7		05.0	117	39.6		55.5	185	07.0	37.9						
08	17	30.9		346	00.0		05.6	132	43.0		55.5	200	09.3	37.9						
MONDAY	09	32	33.4		1	00.3		06.3	147	46.3		55.4	215	11.7	37.8					
	10	47	35.8		16	00.6		06.9	162	49.7		55.4	230	14.0	37.8					
	11	62	38.3		31	00.9		07.5	177	53.1		55.4	245	16.4	37.7					
	12	77	40.7		46	01.2	N 10	08.2	192	56.5	S 23	55.4	260	18.7	N 2 37.6					
	13	92	43.2		61	01.5		08.8	207	59.8		55.3	275	21.1	37.6					
14	107	45.7		76	01.8		09.4	223	03.2		55.3	290	23.4	37.5						
15	122	48.1		91	02.1		10.1	238	06.6		55.3	305	25.8	37.5						
16	137	50.6		106	02.4		10.7	253	09.9		55.3	320	28.1	37.4						
17	152	53.1		121	02.7		11.4	268	13.3		55.3	335	30.5	37.3						
18	167	55.5		136	03.0	N 10	12.0	283	16.6	S 23	55.2	350	32.8	N 2 37.3						
19	182	58.0		151	03.3		12.6	298	20.0		55.2	5	35.2	37.2						
20	198	00.5		166	03.6		13.3	313	23.4		55.2	20	37.5	37.2						
21	213	02.9		181	03.8		13.9	328	26.7		55.2	35	39.9	37.1						
22	228	05.4		196	04.1		14.6	343	30.1		55.1	50	42.2	37.0						
23	243	07.9		211	04.4		15.2	358	33.5		55.1	65	44.6	37.0						
10	00	258	10.3		226	04.7	N 10	15.9	13	36.8	S 23	55.1	80	46.9	N 2 36.9					
	01	273	12.8		241	05.0		16.5	28	40.2		55.1	95	49.3	36.9					
	02	288	15.2		256	05.3		17.1	43	43.5		55.0	110	51.6	36.8					
	03	303	17.7		271	05.5		17.8	58	46.9		55.0	125	54.0	36.7					
	04	318	20.2		286	05.8		18.4	73	50.3		55.0	140	56.3	36.7					
05	333	22.6		301	06.1		19.1	88	53.6		55.0	155	58.7	36.6						
06	348	25.1		316	06.4	N 10	19.7	103	57.0	S 23	54.9	171	01.0	N 2 36.6						
07	3	27.6		331	06.7		20.4	119	00.3		54.9	186	03.4	36.5						
08	18	30.0		346	06.9		21.0	134	03.7		54.9	201	05.7	36.4						
09	33	32.5		1	07.2		21.7	149	07.0		54.9	216	08.1	36.4						
10	48	35.0		16	07.5		22.3	164	10.4		54.8	231	10.4	36.3						
11	63	37.4		31	07.8		22.9	179	13.8		54.8	246	12.8	36.2						
12	78	39.9		46	08.0	N 10	23.6	194	17.1	S 23	54.8	261	15.1	N 2 36.2						
13	93	42.3		61	08.3		24.2	209	20.5		54.8	276	17.5	36.1						
14	108	44.8		76	08.6		24.9	224	23.8		54.7	291	19.8	36.1						
15	123	47.3		91	08.8		25.5	239	27.2		54.7	306	22.2	36.0						
16	138	49.7		106	09.1		26.2	254	30.5		54.7	321	24.5	35.9						
17	153	52.2		121	09.4		26.8	269	33.9		54.7	336	26.8	35.9						
18	168	54.7		136	09.6	N 10	27.5	284	37.2	S 23	54.6	351	29.2	N 2 35.8						
19	183	57.1		151	09.9		28.1	299	40.6		54.6	6	31.5	35.7						
20	198	59.6		166	10.2		28.8	314	43.9		54.6	21	33.9	35.7						
21	214	02.1		181	10.4		29.4	329	47.3		54.6	36	36.2	35.6						
22	229	04.5		196	10.7		30.1	344	50.6		54.5	51	38.6	35.6						
23	244	07.0		211	11.0		30.7	359	54.0		54.5	66	40.9	35.5						
11	00	259	09.4		226	11.2	N 10	31.4	14	57.3	S 23	54.5	81	43.3	N 2 35.4					
	01	274	11.9		241	11.5		32.0	30	00.6		54.4	96	45.6	35.4					
	02	289	14.4		256	11.7		32.7	45	04.0		54.4	111	47.9	35.3					
	03	304	16.8		271	12.0		33.3	60	07.3		54.4	126	50.3	35.2					
	04	319	19.3		286	12.3		34.0	75	10.7		54.4	141	52.6	35.2					
05	334	21.8		301	12.5		34.6	90	14.0		54.3	156	55.0	35.1						
06	349	24.2		316	12.8	N 10	35.3	105	17.4	S 23	54.3	171	57.3	N 2 35.0						
07	4	26.7		331	13.0		35.9	120	20.7		54.3	186	59.7	35.0						
08	19	29.2		346	13.3		36.6	135	24.0		54.3	202	02.0	34.9						
09	34	31.6		1	13.5		37.2	150	27.4		54.2	217	04.3	34.9						
10	49	34.1		16	13.8		37.9	165	30.7		54.2	232	06.7	34.8						
11	64	36.6		31	14.0		38.5	180	34.1		54.2	247	09.0	34.7						
12	79	39.0		46	14.3	N 10	39.2	195	37.4	S 23	54.1	262	11.4	N 2 34.7						
13	94	41.5		61	14.5		39.8	210	40.7		54.1	277	13.7	34.6						
14	109	43.9		76	14.8		40.5	225	44.1		54.1	292	16.0	34.5						
15	124	46.4		91	15.0		41.1	240	47.4		54.1	307	18.4	34.5						
16	139	48.9		106	15.3		41.8	255	50.7		54.0	322	20.7	34.4						
17	154	51.3		121	15.5		42.4	270	54.1		54.0	337	23.0	34.3						
18	169	53.8		136	15.8	N 10	43.1	285	57.4	S 23	54.0	352	25.4	N 2 34.3						
19	184	56.3		151	16.0		43.8	301	00.7		53.9	7	27.7	34.2						
20	199	58.7		166	16.3		44.4	316	04.1		53.9	22	30.1	34.1						
21	215	01.2		181	16.5		45.1	331	07.4		53.9	37	32.4	34.1						
22	230	03.7		196	16.7		45.7	346	10.7		53.9	52	34.7	34.0						
23	245	06.1		211	17.0		46.4	1	14.1		53.8	67	37.1	34.0						
Mer. Pass.		h	m		v	0.3	d	0.6	v	3.4	d	0.0	v	2.3	d	0.1	v	2.2	d	0.1
										</										

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise									
		G.H.A.	Dec.	G.H.A.	ψ	Dec.	d		H.P.	Naut.		Civil	9	10	11	12					
d	h	$^{\circ}$	$'$	$^{\circ}$	$'$	$^{\circ}$	$'$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$					
9	00	180	15.0	N 22	54.1	248	02.3	15.0	N	5	14.7	15.1	56.5	N 70				{ 00 33 }	22 42		
	01	195	14.8		54.3	262	36.3	14.9		5	29.8	15.0	56.5	68				00 30	{ 00 30 }		
	02	210	14.7		54.5	277	10.2	14.9		5	44.8	15.1	56.5	66	////	////	00 30	00 41	00 26	{ 00 38 }	
	03	225	14.6	..	54.8	291	44.1	15.0		5	59.9	15.0	56.4	64	////	////	01 40	00 45	00 36	00 25	{ 00 38 }
	04	240	14.5		55.0	306	18.1	14.9		6	14.9	14.9	56.4	62	////	////	02 14	00 49	00 44	00 39	{ 00 34 }
	05	255	14.4		55.2	320	52.0	14.9		6	29.8	14.9	56.4	60	////	01 03	02 39	00 52	00 51	00 51	00 52
	06	270	14.2	N 22	55.4	335	25.9	14.9	N	6	44.7	14.9	56.4	N 58	////	01 46	02 59	00 55	00 58	01 01	01 07
	07	285	14.1		55.6	349	59.8	15.0		6	59.6	14.8	56.3	56	////	02 14	03 15	00 58	01 03	01 10	01 20
	08	300	14.0		55.8	4 33.8	14.9		7	14.4	14.8	56.3	54	00 58	02 35	03 29	01 00	01 08	01 18	01 18	01 31
	MON 09	315	13.9	..	56.0	19 07.7	14.9		7	29.2	14.8	56.3	52	01 37	02 53	03 41	01 02	01 13	01 25	01 25	01 41
10	330	13.8		56.2	33 41.6	14.9		7	44.0	14.7	56.2	50	02 03	03 07	03 51	01 04	01 17	01 32	01 32	01 50	
N 11	345	13.6		56.4	48 15.5	14.9		7	58.7	14.6	56.2	45	02 47	03 36	04 13	01 08	01 26	01 46	02 10	02 10	
D 12		0 13.5	N 22	56.6	62 49.4	14.9	N	8	13.3	14.6	56.2	N 40	03 17	03 58	04 31	01 12	01 34	01 58	02 25	02 25	
A 13		15 13.4		56.9	77 23.3	14.9		8	27.9	14.6	56.2	35	03 39	04 16	04 45	01 15	01 40	02 08	02 39	02 39	
Y 14		30 13.3		57.1	91 57.2	14.8		8	42.5	14.5	56.1	30	03 58	04 31	04 58	01 18	01 46	02 17	02 50	02 50	
15		45 13.1	..	57.3	106 31.0	14.9		8	57.0	14.5	56.1	20	04 26	04 55	05 20	01 23	01 57	02 32	03 10	03 10	
16		60 13.0		57.5	121 04.9	14.8		9	11.5	14.4	56.1	N 10	04 48	05 16	05 38	01 27	02 06	02 45	03 28	03 28	
17		75 12.9		57.7	135 38.7	14.8		9	25.9	14.3	56.1	0	05 07	05 33	05 56	01 31	02 14	02 58	03 44	03 44	
18		90 12.8	N 22	57.9	150 12.5	14.8	N	9	40.2	14.4	56.0	S 10	05 24	05 50	06 13	01 35	02 23	03 11	04 01	04 01	
19		105 12.6		58.1	164 46.3	14.8		9	54.6	14.2	56.0	20	05 40	06 07	06 31	01 40	02 32	03 25	04 19	04 19	
20		120 12.5		58.3	179 20.1	14.8	10	08.8	14.2	56.0	30	05 56	06 25	06 52	01 45	02 42	03 41	04 39	04 39	04 39	
21		135 12.4	..	58.5	193 53.9	14.7	10	23.0	14.2	56.0	35	06 04	06 36	07 04	01 48	02 49	03 50	04 51	04 51	04 51	
22		150 12.3		58.7	208 27.6	14.7	10	37.2	14.1	55.9	40	06 13	06 47	07 18	01 51	02 56	04 00	05 05	05 05	05 05	
23		165 12.2		58.9	223 01.3	14.7	10	51.3	14.0	55.9	45	06 23	07 00	07 34	01 55	03 04	04 13	05 22	05 22	05 22	
10	00	180	12.0	N 22	59.1	237	35.0	14.7	N 11	05.3	14.0	55.9	S 50	06 35	07 16	07 54	02 00	03 14	04 28	05 43	05 43
	01	195	11.9		59.3	252	08.7	14.6	11	19.3	13.9	55.9	52	06 40	07 23	08 04	02 02	03 19	04 36	05 53	05 53
	02	210	11.8		59.5	266	42.3	14.7	11	33.2	13.9	55.8	54	06 45	07 31	08 15	02 04	03 24	04 44	06 04	06 04
	03	225	11.7	..	59.7	281	16.0	14.6	11	47.1	13.8	55.8	56	06 51	07 40	08 27	02 07	03 29	04 53	06 17	06 17
	04	240	11.5	22	59.9	295	49.6	14.6	12	00.9	13.7	55.8	58	06 58	07 50	08 41	02 10	03 36	05 03	06 31	06 31
	05	255	11.4	23	00.1	310	23.2	14.5	12	14.6	13.7	55.8	S 60	07 05	08 01	08 58	02 13	03 43	05 15	06 49	06 49
	06	270	11.3	N 23	00.3	324	56.7	14.5	N 12	28.3	13.6	55.7									
	07	285	11.2		00.5	339	30.2	14.5	12	41.9	13.6	55.7	Lat.	Sun-set	Twilight		Moonset				
	08	300	11.0		00.6	354	03.7	14.5	12	55.5	13.5	55.7			Civil	Naut.	9	10	11	12	
	09	315	10.9	..	00.8	8 37.2	14.4	13	09.0	13.4	55.7		o	h m	h m	h m	h m	h m	h m	h m	h m
10	330	10.8		01.0	23 10.6	14.4	13	22.4	13.4	55.7	N 72				15 53	18 27					
11	345	10.7		01.2	37 44.0	14.4	13	35.8	13.3	55.6	N 70				15 38	17 51					
12		0 10.5	N 23	01.4	52 17.4	14.3	N 13	49.1	13.2	55.6	68				15 26	17 25	19 49				
13		15 10.4		01.6	66 50.7	14.3	14	02.3	13.2	55.6	64	23 36	////	////	15 17	17 06	19 06				
14		30 10.3		01.8	81 24.0	14.2	14	15.5	13.1	55.6	66	22 21	////	////	15 09	16 50	18 38	20 41	20 41	20 41	
15		45 10.2	..	02.0	95 57.2	14.3	14	28.6	13.0	55.5	62	21 45	////	////	15 02	16 37	18 17	20 01	20 01	20 01	
16		60 10.0		02.2	110 30.5	14.1	14	41.6	12.9	55.5	60	21 20	22 58	////	14 56	16 27	17 59	19 34	19 34	19 34	
17		75 09.9		02.4	125 03.6	14.2	14	54.5	12.9	55.5	N 58	21 01	22 14	////	14 51	16 17	17 45	19 13	19 13	19 13	
18		90 09.8	N 23	02.5	139 36.8	14.1	N 15	07.4	12.8	55.5	56	20 44	21 45	////	14 46	16 09	17 33	18 56	18 56	18 56	
19		105 09.7		02.7	154 09.9	14.1	15	20.2	12.8	55.4	54	20 30	21 24	23 03	14 42	16 02	17 22	18 42	18 42	18 42	
20		120 09.5		02.9	168 43.0	14.0	15	33.0	12.6	55.4	52	20 18	21 07	22 22	14 39	15 55	17 12	18 29	18 29	18 29	
21		135 09.4	..	03.1	183 16.0	14.0	15	45.6	12.6	55.4	50	20 08	20 52	21 56	14 35	15 50	17 04	18 18	18 18	18 18	
22		150 09.3		03.3	197 49.0	13.9	15	58.2	12.5	55.4	45	19 46	20 23	21 12	14 28	15 37	16 46	17 55	17 55	17 55	
23		165 09.2		03.5	212 21.9	13.9	16	10.7	12.5	55.4	N 40	19 28	20 01	20 42	14 22	15 27	16 32	17 36	17 36	17 36	
11	00	180	09.0	N 23	03.6	226	54.8	13.9	N 16	23.2	12.3	55.3	N 40	19 28	20 01	20 42	14 22	15 27	16 32	17 36	17 36
	01	195	08.9		03.8	241	27.7	13.8	16	35.5	12.3	55.3	35	19 13	19 43	20 19	14 17	15 18	16 19	17 21	17 21
	02	210	08.8		04.0	256	00.5	13.8	16	47.8	12.2	55.3	30	19 00	19 28	20 01	14 12	15 10	16 09	17 08	17 08
	03	225	08.6	..	04.2	270	33.3	13.7	17	00.0	12.1	55.3	20	18 39	19 03	19 32	14 05	14 57	15 51	16 45	16 45
	04	240	08.5		04.4	285	06.0	13.7	17	12.1	12.1	55.3	N 10	18 20	18 43	19 10	13 58	14 46	15 35	16 25	16 25
	05	255	08.4		04.5	299	38.7	13.6	17	24.2	11.9	55.2	0	18 03	18 25	18 52	13 51	14 35	15 20	16 07	16 07
	06	270	08.3	N 23	04.7	314	11.3	13.6	N 17	36.1	11.9	55.2	S 10	17 46	18 09	18 35	13 45	14 24	15 05	15 49	15 49
	07	285	08.1		04.9	328	43.9	13.5	17	48.0	11.8	55.2	20	17 28	17 52	18 19	13 38	14 13	14 50	15 30	15 30

G.M.T.	ARIES			VENUS -4.0			MARS -1.9			JUPITER -1.6			SATURN +0.7			STARS		
	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
12 00	260 08.6	226 17.2	N 10 47.0	16 17.4	S 23 53.8		82 39.4	N 2 33.9	226 37.3	N 11 01.8		226 37.3	N 11 01.8			Acamar	315 43.7	S 40 25.4
01	275 11.1	241 17.5	47.7	31 20.7	53.8		97 41.7	33.8	241 39.6	01.8		241 39.6	01.8			Achernar	335 51.4	S 57 23.2
02	290 13.5	256 17.7	48.3	46 24.0	53.7		112 44.1	33.8	256 41.8	01.9		256 41.8	01.9			Acrux	173 46.7	S 62 56.1
03	305 16.0	271 17.9	49.0	61 27.4	53.7		127 46.4	33.7	271 44.0	02.0		271 44.0	02.0			Adhara	255 39.0	S 28 55.7
04	320 18.4	286 18.2	49.7	76 30.7	53.7		142 48.8	33.6	286 46.2	02.1		286 46.2	02.1			Aldebaran	291 27.9	N 16 27.0
05	335 20.9	301 18.4	50.3	91 34.0	53.7		157 51.1	33.6	301 48.4	02.2		301 48.4	02.2					
06	350 23.4	316 18.6	N 10 51.0	106 37.3	S 23 53.6		172 53.4	N 2 33.5	316 50.6	N 11 02.2		316 50.6	N 11 02.2			Alioth	166 49.2	N 56 07.7
07	5 25.8	331 18.9	51.6	121 40.7	53.6		187 55.8	33.4	331 52.9	02.3		331 52.9	02.3			Alkaid	153 24.5	N 49 28.0
08	20 28.3	346 19.1	52.3	136 44.0	53.6		202 58.1	33.4	346 55.1	02.4		346 55.1	02.4			Al Na'ir	28 25.0	S 47 06.4
09	35 30.8	1 19.3	52.9	151 47.3	53.5		218 00.4	33.3	1 57.3	02.5		1 57.3	02.5			Alnilam	276 20.4	S 1 13.1
10	50 33.2	16 19.6	53.6	166 50.6	53.5		233 02.8	33.2	16 59.5	02.6		16 59.5	02.6			Alphard	218 28.9	S 8 31.5
11	65 35.7	31 19.8	54.3	181 54.0	53.5		248 05.1	33.2	31 01.7	02.6		31 01.7	02.6					
12	80 38.2	46 20.0	N 10 54.9	196 57.3	S 23 53.5		263 07.4	N 2 33.1	47 04.0	N 11 02.7		47 04.0	N 11 02.7			Alphecca	126 38.7	N 26 48.9
13	95 40.6	61 20.2	55.6	212 00.6	53.4		278 09.8	33.0	62 06.2	02.8		62 06.2	02.8			Alpheratz	358 18.1	N 28 55.1
14	110 43.1	76 20.5	56.2	227 03.9	53.4		293 12.1	33.0	77 08.4	02.9		77 08.4	02.9			Altair	62 40.4	N 8 47.0
15	125 45.6	91 20.7	56.9	242 07.2	53.4		308 14.4	32.9	92 10.6	02.9		92 10.6	02.9			Ankaa	353 48.3	S 42 28.1
16	140 48.0	106 20.9	57.6	257 10.5	53.3		323 16.8	32.8	107 12.8	03.0		107 12.8	03.0			Antares	113 06.7	S 26 22.1
17	155 50.5	121 21.1	58.2	272 13.9	53.3		338 19.1	32.8	122 15.1	03.1		122 15.1	03.1					
18	170 52.9	136 21.4	N 10 58.9	287 17.2	S 23 53.3		353 21.4	N 2 32.7	137 17.3	N 11 03.2		137 17.3	N 11 03.2			Arcturus	146 25.7	N 19 20.4
19	185 55.4	151 21.6	10 59.5	302 20.5	53.3		8 23.8	32.6	152 19.5	03.3		152 19.5	03.3			Atria	108 38.0	S 68 58.6
20	200 57.9	166 21.8	11 00.2	317 23.8	53.2		23 26.1	32.6	167 21.7	03.3		167 21.7	03.3			Avior	234 32.3	S 59 24.7
21	216 00.3	181 22.0	11 00.9	332 27.1	53.2		38 28.4	32.5	182 23.9	03.4		182 23.9	03.4			Bellatrix	279 08.0	N 6 19.5
22	231 02.8	196 22.3	01.5	347 30.4	53.2		53 30.8	32.4	197 26.2	03.5		197 26.2	03.5			Betelgeuse	271 37.6	N 7 24.3
23	246 05.3	211 22.5	02.2	2 33.7	53.1		68 33.1	32.3	212 28.4	03.6		212 28.4	03.6					
13 00	261 07.7	226 22.7	N 11 02.9	17 37.1	S 23 53.1		83 35.4	N 2 32.3	227 30.6	N 11 03.6		227 30.6	N 11 03.6			Canopus	264 11.5	S 52 40.6
01	276 10.2	241 22.9	03.5	32 40.4	53.1		98 37.7	32.2	242 32.8	03.7		242 32.8	03.7			Capella	281 24.0	N 45 58.2
02	291 12.7	256 23.1	04.2	47 43.7	53.0		113 40.1	32.1	257 35.0	03.8		257 35.0	03.8			Deneb	49 53.9	N 45 09.9
03	306 15.1	271 23.3	04.8	62 47.0	53.0		128 42.4	32.1	272 37.3	03.9		272 37.3	03.9			Denebola	183 07.4	N 14 44.6
04	321 17.6	286 23.5	05.5	77 50.3	53.0		143 44.7	32.0	287 39.5	03.9		287 39.5	03.9			Diphda	349 29.2	S 18 09.1
05	336 20.0	301 23.8	06.2	92 53.6	53.0		158 47.1	31.9	302 41.7	04.0		302 41.7	04.0					
06	351 22.5	316 24.0	N 11 06.8	107 56.9	S 23 52.9		173 49.4	N 2 31.9	317 43.9	N 11 04.1		317 43.9	N 11 04.1			Dubhe	194 32.0	N 61 55.3
07	6 25.0	331 24.2	07.5	123 00.2	52.9		188 51.7	31.8	332 46.1	04.2		332 46.1	04.2			El Nath	278 55.0	N 28 35.1
08	21 27.4	346 24.4	08.2	138 03.5	52.9		203 54.1	31.7	347 48.4	04.3		347 48.4	04.3			Eltanin	91 01.0	N 51 29.3
09	36 29.9	1 24.6	08.8	153 06.8	52.8		218 56.4	31.7	2 50.6	04.3		2 50.6	04.3			Enif	34 19.6	N 9 43.9
10	51 32.4	16 24.8	09.5	168 10.1	52.8		233 58.7	31.6	17 52.8	04.4		17 52.8	04.4			Fomalhaut	16 00.4	S 29 46.9
11	66 34.8	31 25.0	10.1	183 13.4	52.8		249 01.0	31.5	32 55.0	04.5		32 55.0	04.5					
12	81 37.3	46 25.2	N 11 10.8	198 16.7	S 23 52.7		264 03.4	N 2 31.4	47 57.2	N 11 04.6		47 57.2	N 11 04.6			Gacrux	172 38.1	S 56 56.8
13	96 39.8	61 25.4	11.5	213 20.0	52.7		279 05.7	31.4	62 59.5	04.6		62 59.5	04.6			Gienah	176 26.5	S 17 22.5
14	111 42.2	76 25.6	12.1	228 23.3	52.7		294 08.0	31.3	78 01.7	04.7		78 01.7	04.7			Hadar	149 35.0	S 60 13.9
15	126 44.7	91 25.8	12.8	243 26.6	52.6		309 10.3	31.2	93 03.9	04.8		93 03.9	04.8			Hamal	328 38.6	N 23 19.1
16	141 47.2	106 26.0	13.5	258 29.9	52.6		324 12.7	31.2	108 06.1	04.9		108 06.1	04.9			Kaus Aust.	84 27.4	S 34 24.1
17	156 49.6	121 26.2	14.1	273 33.2	52.6		339 15.0	31.1	123 08.4	04.9		123 08.4	04.9					
18	171 52.1	136 26.4	N 11 14.8	288 36.5	S 23 52.6		354 17.3	N 2 31.0	138 10.6	N 11 05.0		138 10.6	N 11 05.0			Kochab	137 17.0	N 74 16.9
19	186 54.5	151 26.6	15.5	303 39.8	52.5		9 19.6	31.0	153 12.8	05.1		153 12.8	05.1			Markab	14 11.4	N 15 02.3
20	201 57.0	166 26.8	16.1	318 43.1	52.5		24 22.0	30.9	168 15.0	05.2		168 15.0	05.2			Menkar	314 50.1	N 3 58.3
21	216 59.5	181 27.0	16.8	333 46.4	52.5		39 24.3	30.8	183 17.2	05.3		183 17.2	05.3			Menkent	148 46.6	S 36 13.5
22	232 01.9	196 27.2	17.5	348 49.6	52.4		54 26.6	30.7	198 19.5	05.3		198 19.5	05.3			Miaplacidus	221 47.7	S 69 35.6
23	247 04.4	211 27.4	18.1	3 52.9	52.4		69 28.9	30.7	213 21.7	05.4		213 21.7	05.4					
14 00	262 06.9	226 27.6	N 11 18.8	18 56.2	S 23 52.4		84 31.3	N 2 30.6	228 23.9	N 11 05.5		228 23.9	N 11 05.5			Mirfak	309 28.6	N 49 45.2
01	277 09.3	241 27.8	19.5	33 59.5	52.3		99 33.6	30.5	243 26.1	05.6		243 26.1	05.6			Nunki	76 39.1	S 26 20.3
02	292 11.8	256 28.0	20.1	49 02.8	52.3		114 35.9	30.4	258 28.4	05.6		258 28.4	05.6			Peacock	54 10.8	S 56 50.0
03	307 14.3	271 28.2	20.8	64 06.1	52.3		129 38.2	30.4	273 30.6	05.7		273 30.6	05.7			Pollux	244 08.6	N 28 06.3
04	322 16.7	286 28.4	21.5	79 09.4	52.2		144 40.6	30.3	288 32.8	05.8		288 32.8	05.8			Procyon	245 34.7	N 5 18.4
05	337 19.2	301 28.6	22.1	94 12.7	52.2		159 42.9	30.2	303 35.0	05.9		303 35.0	05.9					
06	352 21.7	316 28.8	N 11 22.8	109 15.9	S 23 52.2		174 45.2	N 2 30.2	318 37.2	N 11 05.9		318 37.2	N 11 05.9			Rasalhague	96 36.9	N 12 34.7
07	7 24.1	331 29.0	23.5	124 19.2	52.1		189 47.5	30.1	333 39.5	06.0		333 39.5	06.0			Regulus	208 18.9	N 12 07.1
08	22 26.6	346 29.2	24.1	139 22.5	52.1		204 49.8	30.0	348 41.7	06.1		348 41.7	06.1			Rigel	281 44.3	S 8 14.0
09	37 29.0	1 29.4	24.8	154 25.8	52.1		219 52.2	29.9	3 43.9	06.2		3 43.9	06.2			Rigel Kent.	140 36.9	S 60 42.8
10	52 31.5	16 29.6	25.5	169 29.1	52.0		234 54.5	29.9	18 46.1	06.2		18 46.1	06.2			Sabik	102 50.3	S 15 41.5
11	67 34.0	31 29.7	26.1	184 32.3	52.0		249 56.8	29.8	33 48.4	06.3		33 48.4	06.3					
12	82 36.4	46 29.9	N 11 26.8	199 35.6	S 23 52.0		264 59.1	N 2 29.7	48 50.6	N 11 06.4		48 50.6	N 11 06.4			Schedar	350 19.0	N 56 22.0
13	97 38.9	61 30.1	27.5	214 38.9	51.9		280 01.5	29.7	63 52.8	06.5		63 52.8	06.5			Shaula	97 06.6	S 37 05.1
14	112 41.4	76 30.3	28.2	229 42.2	51.9		295 03.8	29.6	78 55.0	06.5		78 55.0	06.5			Sirius	259 03.4	S 16 40.3
15	127 43.8	91 30.5	28.8	244 45.5	51.9		310 06.1	29.5	93 57.3	06.6		93 57.3	06.6			Spica	159 06.1	S 11 00.3
16	142 46.3	106 30.7	29.5	259 48.7	51.8													

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise								
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	12	13	14	15				
d	h	°	'	°	'	°	'	°	'	h	m	h	m	h	m	h	m	h	m	
12 00	00	180	06-0	N 23	07-8	215	50-2	12-7	N 20	56-4	10-2	54-9								
	01	195	05-8		08-0	230	21-9	12-6	21	06-6	10-2	54-9								
	02	210	05-7		08-1	244	53-5	12-5	21	16-8	10-0	54-9								
	03	225	05-6		08-3	259	25-0	12-5	21	26-8	10-0	54-8								
	04	240	05-5		08-4	273	56-5	12-5	21	36-8	9-8	54-8								
	05	255	05-3		08-6	288	28-0	12-4	21	46-6	9-8	54-8								
T H U R S D A Y	06	270	05-2	N 23	08-8	302	59-4	12-3	N 21	56-4	9-6	54-8								
	07	285	05-1		08-9	317	30-7	12-3	22	06-0	9-5	54-8								
	08	300	04-9		09-1	332	02-0	12-2	22	15-5	9-5	54-8								
	09	315	04-8		09-2	346	33-2	12-2	22	25-0	9-3	54-7								
	10	330	04-7		09-4	1	04-4	12-1	22	34-3	9-2	54-7								
	11	345	04-5		09-6	15	35-5	12-1	22	43-5	9-1	54-7								
F R I D A Y	12	0	04-4	N 23	09-7	30	06-6	12-0	N 22	52-6	9-0	54-7								
	13	15	04-3		09-9	44	37-6	11-9	23	01-6	8-9	54-7								
	14	30	04-2		10-0	59	08-5	11-9	23	10-5	8-8	54-7								
	15	45	04-0		10-2	73	39-4	11-9	23	19-3	8-7	54-7								
	16	60	03-9		10-3	88	10-3	11-7	23	28-0	8-6	54-6								
	17	75	03-8		10-5	102	41-0	11-8	23	36-6	8-4	54-6								
S A T U R D A Y	18	90	03-6	N 23	10-6	117	11-8	11-7	N 23	45-0	8-4	54-6								
	19	105	03-5		10-8	131	42-5	11-6	23	53-4	8-2	54-6								
	20	120	03-4		10-9	146	13-1	11-6	24	01-6	8-1	54-6								
	21	135	03-3		11-1	160	43-7	11-5	24	09-7	8-0	54-6								
	22	150	03-1		11-2	175	14-2	11-4	24	17-7	7-9	54-6								
	23	165	03-0		11-4	189	44-6	11-5	24	25-6	7-8	54-5								
13 00	00	180	02-9	N 23	11-5	204	15-1	11-3	N 24	33-4	7-6	54-5								
	01	195	02-7		11-7	218	45-4	11-3	24	41-0	7-5	54-5								
	02	210	02-6		11-8	233	15-7	11-3	24	48-5	7-5	54-5								
	03	225	02-5		12-0	247	46-0	11-2	24	56-0	7-3	54-5								
	04	240	02-3		12-1	262	16-2	11-2	25	03-3	7-1	54-5								
	05	255	02-2		12-3	276	46-4	11-1	25	10-4	7-1	54-5								
F R I D A Y	06	270	02-1	N 23	12-4	291	16-5	11-0	N 25	17-5	6-9	54-5								
	07	285	01-9		12-5	305	46-5	11-0	25	24-4	6-8	54-4								
	08	300	01-8		12-7	320	16-5	11-0	25	31-2	6-7	54-4								
	09	315	01-7		12-8	334	46-5	10-9	25	37-9	6-6	54-4								
	10	330	01-6		13-0	349	16-4	10-9	25	44-5	6-5	54-4								
	11	345	01-4		13-1	3	46-3	10-8	25	51-0	6-3	54-4								
S A T U R D A Y	12	0	01-3	N 23	13-3	18	16-1	10-8	N 25	57-3	6-2	54-4								
	13	15	01-2		13-4	32	45-9	10-7	26	03-5	6-0	54-4								
	14	30	01-0		13-5	47	15-6	10-7	26	09-5	6-0	54-4								
	15	45	00-9		13-7	61	45-3	10-6	26	15-5	5-8	54-3								
	16	60	00-8		13-8	76	14-9	10-6	26	21-3	5-7	54-3								
	17	75	00-6		13-9	90	44-5	10-6	26	27-0	5-6	54-3								
14 00	18	90	00-5	N 23	14-1	105	14-1	10-5	N 26	32-6	5-4	54-3								
	19	105	00-4		14-2	119	43-6	10-5	26	38-0	5-3	54-3								
	20	120	00-2		14-3	134	13-1	10-4	26	43-3	5-2	54-3								
	21	135	00-1		14-5	148	42-5	10-4	26	48-5	5-0	54-3								
	22	150	00-0		14-6	163	11-9	10-4	26	53-5	4-9	54-3								
	23	164	59-8		14-7	177	41-3	10-3	26	58-4	4-8	54-3								
15 00	00	179	59-7	N 23	14-9	192	10-6	10-3	N 27	03-2	4-7	54-3								
	01	194	59-6		15-0	206	39-9	10-2	27	07-9	4-5	54-2								
	02	209	59-4		15-1	221	09-1	10-2	27	12-4	4-4	54-2								
	03	224	59-3		15-3	235	38-3	10-2	27	16-8	4-2	54-2								
	04	239	59-2		15-4	250	07-5	10-2	27	21-0	4-2	54-2								
	05	254	59-1		15-5	264	36-7	10-1	27	25-2	4-0	54-2								
S A T U R D A Y	06	269	58-9	N 23	15-6	279	05-8	10-1	N 27	29-2	3-8	54-2								
	07	284	58-8		15-8	293	34-9	10-1	27	33-0	3-7	54-2								
	08	299	58-7		15-9	308	04-0	10-0	27	36-7	3-6	54-2								
	09	314	58-5		16-0	322	33-0	10-0	27	40-3	3-5	54-2								
	10	329	58-4		16-1	337	02-0	10-0	27	43-8	3-3	54-2								
	11	344	58-3		16-3	351	31-0	10-0	27	47-1	3-2	54-2								
16 00	12	359	58-1	N 23	16-4	6	00-0	9-9	N 27	50-3	3-0	54-2								
	13	14	58-0		16-5	20	28-9	9-9	27	53-3	2-9	54-1								
	14	29	57-9		16-6	34	57-8	9-9	27	56-2	2-8	54-1								
	15	44	57-7		16-7	49	26-7	9-9	27	59-0	2-6	54-1								
	16	59	57-6		16-9	63	55-6	9-9	28	01-6	2-5	54-1								
	17	74	57-5		17-0	78	24-5	9-8	28	04-1	2-4	54-1								
17 00	18	89	57-3	N 23	17-1	92	53-3	9-9	N 28	06-5	2-2	54-1								
	19	104	57-2		17-2	107	22-2	9-8	28	08-7	2-1	54-1								
	20	119	57-1		17-3	121	51-0	9-8	28	10-8	1-9	54-1								
	21	134	56-9		17-4	136	19-8	9-8	28	12-7	1-8	54-1								
	22	149	56-8		17-6	150	48-6	9-7	28	14-5	1-7	54-1								
	23	164	56-7		17-7	165	17-3	9-8	28	16-2	1-5	54-1								
S.D. 15-8		<i>d</i> 0-1		S.D. 14-9		14-8		14-8												
Day		SUN			MOON			Mer. Pass.		MOON			Mer. Upper		Pass. Lower		Age		Phase	
		Eqn. of Time		Mer. Pass.		Mer. Upper				Pass. Lower										
		00 ^h	12 ^h	h m	h m	h m	h m			d										
12		00 24		00 18		12 00		09 56		22 20		27								
13		00 12		00 05		12 00		10 44		23 10		28								
14		00 01		00 07		12 00		11 35		24 01		29								

G.M.T.	ARIES		VENUS -4.0		MARS -1.8		JUPITER -1.6		SATURN +0.7		STARS		
	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "
15 SUN DAY	00 263 06.0	226 32.1 N11 34.9	20 14.9 S 23 51.6	85 27.0 N 2 28.9	229 17.3 N11 07.3	Acamar	315 43.7	S 40 25.3					
	01 278 08.5	241 32.3 35.5	35 18.2 51.6	100 29.3 28.8	244 19.5 07.4	Achernar	335 51.4	S 57 23.2					
	02 293 10.9	256 32.4 36.2	50 21.4 51.5	115 31.6 28.7	259 21.7 07.5	Acrux	173 46.7	S 62 56.1					
	03 308 13.4	271 32.6 36.9	65 24.7 51.5	130 33.9 28.6	274 24.0 07.5	Adhara	255 39.0	S 28 55.7					
	04 323 15.9	286 32.8 37.5	80 27.9 51.5	145 36.2 28.6	289 26.2 07.6	Aldebaran	291 27.9	N 16 27.0					
	05 338 18.3	301 33.0 38.2	95 31.2 51.4	160 38.6 28.5	304 28.4 07.7								
	06 353 20.8	316 33.1 N11 38.9	110 34.5 S 23 51.4	175 40.9 N 2 28.4	319 30.6 N11 07.8	Alioth	166 49.3	N 56 07.7					
	07 8 23.3	331 33.3 39.6	125 37.7 51.4	190 43.2 28.3	334 32.9 07.8	Alkaid	153 24.5	N 49 28.1					
	08 23 25.7	346 33.5 40.2	140 41.0 51.3	205 45.5 28.3	349 35.1 07.9	Al Na'ir	28 24.9	S 47 06.4					
	09 38 28.2	1 33.6 40.9	155 44.2 51.3	220 47.8 28.2	4 37.3 08.0	Alnilam	276 20.4	S 1 13.1					
16 MON DAY	10 53 30.7	16 33.8 41.6	170 47.5 51.3	235 50.1 28.1	19 39.5 08.1	Alphard	218 28.9	S 8 31.5					
	11 68 33.1	31 34.0 42.2	185 50.8 51.2	250 52.5 28.0	34 41.8 08.1								
	12 83 35.6	46 34.1 N11 42.9	200 54.0 S 23 51.2	265 54.8 N 2 28.0	49 44.0 N11 08.2	Alphecca	126 38.7	N 26 49.0					
	13 98 38.0	61 34.3 43.6	215 57.3 51.2	280 57.1 27.9	64 46.2 08.3	Alpheratz	358 18.0	N 28 55.1					
	14 113 40.5	76 34.5 44.3	231 00.5 51.1	295 59.4 27.8	79 48.4 08.4	Altair	62 40.3	N 8 47.0					
	15 128 43.0	91 34.6 44.9	246 03.8 51.1	311 01.7 27.7	94 50.7 08.4	Ankaa	353 48.3	S 42 28.0					
	16 143 45.4	106 34.8 45.6	261 07.0 51.1	326 04.0 27.7	109 52.9 08.5	Antares	113 06.7	S 26 22.1					
	17 158 47.9	121 34.9 46.3	276 10.3 51.0	341 06.3 27.6	124 55.1 08.6								
	18 173 50.4	136 35.1 N11 47.0	291 13.5 S 23 51.0	356 08.7 N 2 27.5	139 57.3 N11 08.6	Arcturus	146 25.7	N 19 20.4					
	19 188 52.8	151 35.3 47.6	306 16.8 51.0	11 11.0 27.4	154 59.6 08.7	Atria	108 37.9	S 68 58.7					
17 TUES DAY	20 203 55.3	166 35.4 48.3	321 20.0 50.9	26 13.3 27.4	170 01.8 08.8	Avior	234 32.3	S 59 24.7					
	21 218 57.8	181 35.6 49.0	336 23.3 50.9	41 15.6 27.3	185 04.0 08.9	Bellatrix	279 08.0	N 6 19.5					
	22 234 00.2	196 35.7 49.7	351 26.5 50.9	56 17.9 27.2	200 06.2 08.9	Betelgeuse	271 37.6	N 7 24.3					
	23 249 02.7	211 35.9 50.3	6 29.7 50.8	71 20.2 27.1	215 08.5 09.0								
	00 264 05.2	226 36.1 N11 51.0	21 33.0 S 23 50.8	86 22.5 N 2 27.0	230 10.7 N11 09.1	Canopus	264 11.5	S 52 40.6					
	01 279 07.6	241 36.2 51.7	36 36.6 50.8	101 24.8 27.0	245 12.9 09.2	Capella	281 24.0	N 45 58.2					
	02 294 10.1	256 36.4 52.4	51 39.5 50.7	116 27.1 26.9	260 15.1 09.2	Deneb	49 53.9	N 45 09.9					
	03 309 12.5	271 36.5 53.0	66 42.7 50.7	131 29.5 26.8	275 17.4 09.3	Denebola	183 07.4	N 14 44.6					
	04 324 15.0	286 36.7 53.7	81 45.9 50.7	146 31.8 26.7	290 19.6 09.4	Diphda	349 29.2	S 18 09.1					
	05 339 17.5	301 36.8 54.4	96 49.2 50.6	161 34.1 26.7	305 21.8 09.5								
18 WED DAY	06 354 19.9	316 37.0 N11 55.1	111 52.4 S 23 50.6	176 36.4 N 2 26.6	320 24.1 N11 09.5	Dubhe	194 32.0	N 61 55.3					
	07 9 22.4	331 37.1 55.7	126 55.6 50.6	191 38.7 26.5	335 26.3 09.6	Elath	278 55.0	N 28 35.1					
	08 24 24.9	346 37.3 56.4	141 58.9 50.5	206 41.0 26.4	350 28.5 09.7	Eltanin	91 01.0	N 51 29.4					
	09 39 27.3	1 37.4 57.1	157 02.1 50.5	221 43.3 26.4	5 30.7 09.8	Enif	34 19.6	N 9 43.9					
	10 54 29.8	16 37.6 57.8	172 05.3 50.5	236 45.6 26.3	20 33.0 09.8	Fomalhaut	16 00.3	S 29 46.9					
	11 69 32.3	31 37.7 58.4	187 08.6 50.4	251 47.9 26.2	35 35.2 09.9								
	12 84 34.7	46 37.8 N11 59.1	202 11.8 S 23 50.4	266 50.2 N 2 26.1	50 37.4 N11 10.0	Gacrux	172 38.2	S 56 56.8					
	13 99 37.2	61 38.0 11 59.8	217 15.0 50.4	281 52.6 26.0	65 39.7 10.1	Gienah	176 26.5	S 17 22.5					
	14 114 39.7	76 38.1 12 00.5	232 18.3 50.3	296 54.9 26.0	80 41.9 10.1	Hadar	149 35.0	S 60 13.9					
	15 129 42.1	91 38.3 01.1	247 21.5 50.3	311 57.2 25.9	95 44.1 10.2	Hamal	328 38.5	N 23 19.1					
19 THUR DAY	16 144 44.6	106 38.4 01.8	262 24.7 50.3	326 59.5 25.8	110 46.3 10.3	Kaus Aust.	84 27.4	S 34 24.1					
	17 159 47.0	121 38.6 02.5	277 27.9 50.2	342 01.8 25.7	125 48.6 10.4								
	18 174 49.5	136 38.7 N12 03.2	292 31.2 S 23 50.2	357 04.1 N 2 25.7	140 50.8 N11 10.4	Kochab	137 17.1	N 74 16.9					
	19 189 52.0	151 38.8 03.8	307 34.4 50.2	12 06.4 25.6	155 53.0 10.5	Markab	14 11.4	N 15 02.3					
	20 204 54.4	166 39.0 04.5	322 37.6 50.1	27 08.7 25.5	170 55.3 10.6	Menkar	314 50.1	N 3 58.3					
	21 219 56.9	181 39.1 05.2	337 40.8 50.1	42 11.0 25.4	185 57.5 10.6	Menkent	148 46.6	S 36 13.5					
	22 234 59.4	196 39.2 05.9	352 44.0 50.1	57 13.3 25.3	200 59.7 10.7	Miaplacidus	221 47.8	S 69 35.6					
	23 250 01.8	211 39.4 06.6	7 47.3 50.0	72 15.6 25.3	216 01.9 10.8								
	00 265 04.3	226 39.5 N12 07.2	22 50.5 S 23 50.0	87 17.9 N 2 25.2	231 04.2 N11 10.9	Mirfak	309 28.5	N 49 45.2					
	01 280 06.8	241 39.7 07.9	37 53.7 50.0	102 20.2 25.1	246 06.4 10.9	Nunki	76 39.0	S 26 20.3					
20 FRI DAY	02 295 09.2	256 39.8 08.6	52 56.9 49.9	117 22.5 25.0	261 08.6 11.0	Peacock	54 10.8	S 56 50.0					
	03 310 11.7	271 39.9 09.3	68 00.1 49.9	132 24.8 24.9	276 10.9 11.1	Pollux	244 08.6	N 28 06.3					
	04 325 14.2	286 40.0 09.9	83 03.3 49.9	147 27.2 24.9	291 13.1 11.2	Procyon	245 34.7	N 5 18.4					
	05 340 16.6	301 40.2 10.6	98 06.5 49.8	162 29.5 24.8	306 15.3 11.2								
	06 355 19.1	316 40.3 N12 11.3	113 09.7 S 23 49.8	177 31.8 N 2 24.7	321 17.6 N11 11.3	Rasalhague	96 36.9	N 12 34.7					
	07 10 21.5	331 40.4 12.0	128 13.0 49.8	192 34.1 24.6	336 19.8 11.4	Regulus	208 18.9	N 12 07.1					
	08 25 24.0	346 40.6 12.7	143 16.2 49.7	207 36.4 24.5	351 22.0 11.5	Rigel	281 44.3	S 8 14.0					
	09 40 26.5	1 40.7 13.3	158 19.4 49.7	222 38.7 24.5	6 24.2 11.5	Rigel Kent.	140 36.9	S 60 42.8					
	10 55 28.9	16 40.8 14.0	173 22.6 49.7	237 41.0 24.4	21 26.5 11.6	Sabik	102 50.3	S 15 41.5					
	11 70 31.4	31 40.9 14.7	188 25.8 49.6	252 43.3 24.3	36 28.7 11.7								
21 SAT DAY	12 85 33.9	46 41.1 N12 15.4	203 29.0 S 23 49.6	267 45.6 N 2 24.2	51 30.9 N11 11.7	Schedar	350 18.9	N 56 22.0					
	13 100 36.3	61 41.2 16.0	218 32.2 49.6	282 47.9 24.1	66 33.2 11.8	Shaula	97 06.6	S 37 05.1					
	14 115 38.8	76 41.3 16.7	233 35.4 49.5	297 50.2 24.1	81 35.4 11.9	Sirius	259 03.4	S 16 40.3					
	15 130 41.3	91 41.4 17.4	248 38.6 49.5	312 52.5 24.0	96 37.6 12.0	Spica	159 06.1	S 11 00.3					
	16 145 43.7	106 41.6 18.1	263 41.8 49.5	327 54.8 23.9	111 39.9 12.0	Suhail	223 17.3	S 43 18.6					
	17 160 46.2	121 41.7 18.8	278 45.0 49.4	342 57.1 23.8	126 42.1 12.1								
	18 175 48.6	136 41.8 N12 19.4	293 48.2 S 23 49.4	357 59.4 N 2 23.7	141 44.3 N11 12.2	Vega	81 01.0	N 38 45.1					
	19 190 51.1	151 41.9 20.1	308 51.4 49.4	13 01.7 23.7	156 46.6 12.3	Zuben'ubi	137 42.0	S 15 55.1					
	20 205 53.6	166 42.0 20.8	323 54.6 49.3	28 04.0 23.6	171 48.8 12.3								
	21 220 56.0	181 42.2 21.5	338 57.8 49.3	43 06.3 23.5	186 51.0 12.4								
22 SUN DAY	22 235 58.5	196 42.3 22.2	354 00.9 49.3	58 08.6 23.4	201 53.2 12.5	Venus	322 30.9	h 53					
	23 251 01.0	211 42.4 22.8	9 04.1 49.2	73 10.9 23.3	216 55.5 12.5	Mars	117 27.8	22 29					
						Jupiter	182 17.3	18 12					
											Saturn	326 05.5	8 38
Mer. Pass. 6 22.6 ^m											Mer. Pass. h m		
v 0.1 d 0.7											v 3.2 d 0.0		
											v 2.3 d 0.1		
											v 2.2 d 0.1		

G.M.T.		SUN		MOON						Lat.	Twilight		Sun-rise	Moonrise						
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.	Naut.		Civil	15		16	17	18				
d	h	°	'	°	'	°	'	'	°	'	h	m	h	m	h	m	h	m		
15	00	179	56.5	N 23	17.8	179	46.1	9.8	N 28	17.7	1.4	54.1	N 72	□	□	□	□	□		
	01	194	56.4	17.9	194	14.9	9.7	28	19.1	1.3	54.1	N 70	□	□	□	□	□			
	02	209	56.3	18.0	208	43.6	9.8	28	20.4	1.1	54.1	68	□	□	□	□	□			
	03	224	56.1	18.1	223	12.4	9.7	28	21.5	0.9	54.0	66	□	□	□	□	03 09			
	04	239	56.0	18.2	237	41.1	9.8	28	22.4	0.9	54.0	64			01 32	□	□	04 22		
	05	254	55.9	18.3	252	09.9	9.7	28	23.3	0.7	54.0	62			02 10	□	□	04 57		
	06	269	55.7	N 23	18.5	266	38.6	9.8	N 28	24.0	0.5	54.0	60		00 52	02 36	01 30	02 27	03 50	05 23
	07	284	55.6	18.6	281	07.4	9.7	28	24.5	0.4	54.0	N 58		01 41	02 56	02 08	03 04	04 19	05 43	
	08	299	55.5	18.7	295	36.1	9.8	28	24.9	0.3	54.0	56		02 11	03 13	02 35	03 30	04 41	05 59	
	09	314	55.3	18.8	310	04.9	9.7	28	25.2	0.2	54.0	54	00 48	02 33	03 27	02 56	03 51	04 58	06 14	
SUNDAY	10	329	55.2	18.9	324	33.6	9.8	28	25.4	0.0	54.0	52	01 33	02 51	03 39	03 14	04 08	05 14	06 26	
	11	344	55.1	19.0	339	02.4	9.8	28	25.4	0.2	54.0	50	02 00	03 06	03 50	03 29	04 23	05 27	06 37	
	12	359	54.9	N 23	19.1	353	31.2	9.7	N 28	25.2	0.3	54.0	45	02 46	03 35	04 13	03 59	04 53	05 54	06 59
	13	14	54.8	19.2	7	59.9	9.8	28	24.9	0.4	54.0	N 40	03 16	03 58	04 30	04 23	05 16	06 15	07 17	
	14	29	54.6	19.3	22	28.7	9.8	28	24.5	0.5	54.0	35	03 39	04 16	04 46	04 42	05 35	06 33	07 32	
	15	44	54.5	19.4	36	57.5	9.8	28	24.0	0.7	54.0	30	03 58	04 31	04 58	04 59	05 52	06 48	07 45	
	16	59	54.4	19.5	51	26.3	9.8	28	23.3	0.8	54.0	20	04 27	04 56	05 20	05 27	06 20	07 14	08 07	
	17	74	54.2	19.6	65	55.1	9.9	28	22.5	1.0	54.0	N 10	04 49	05 16	05 39	05 52	06 44	07 36	08 26	
	18	89	54.1	N 23	19.7	80	24.0	9.8	N 28	21.5	1.1	54.0	0	05 08	05 34	05 57	06 14	07 06	07 56	08 44
	19	104	54.0	19.8	94	52.8	9.9	28	20.4	1.3	54.0	S 10	05 25	05 52	06 14	06 37	07 28	08 17	09 02	
20	119	53.8	19.9	109	21.7	9.9	28	19.1	1.3	54.0	20	05 41	06 09	06 33	07 01	07 52	08 39	09 21		
21	134	53.7	20.0	123	50.6	9.9	28	17.8	1.6	54.0	30	05 58	06 28	06 54	07 30	08 20	09 04	09 43		
22	149	53.6	20.1	138	19.5	9.9	28	16.2	1.6	54.0	35	06 06	06 38	07 06	07 47	08 36	09 19	09 55		
23	164	53.4	20.2	152	48.4	10.0	28	14.6	1.8	54.0	40	06 16	06 50	07 20	08 06	08 55	09 36	10 10		
24											45	06 26	07 03	07 37	08 30	09 18	09 57	10 27		
16	00	179	53.3	N 23	20.3	167	17.4	10.0	N 28	12.8	1.9	54.0	S 50	06 38	07 19	07 58	09 01	09 48	10 22	10 48
	01	194	53.2	20.4	181	46.4	10.0	28	10.9	2.1	54.0	52	06 43	07 27	08 08	09 17	10 02	10 35	10 58	
	02	209	53.0	20.5	196	15.4	10.0	28	08.8	2.2	54.0	54	06 49	07 35	08 19	09 34	10 19	10 49	11 10	
	03	224	52.9	20.6	210	44.4	10.0	28	06.6	2.3	54.0	56	06 55	07 44	08 31	09 56	10 39	11 06	11 23	
	04	239	52.8	20.7	225	13.4	10.1	28	04.3	2.5	54.0	58	07 02	07 54	08 46	10 24	11 04	11 26	11 37	
	05	254	52.6	20.8	239	42.5	10.1	28	01.8	2.6	54.0	S 60	07 09	08 06	09 03	11 05	11 38	11 51	11 55	
	06	269	52.5	N 23	20.9	254	11.6	10.2	N 27	59.2	2.7	54.0								
	07	284	52.4	21.0	268	40.8	10.1	27	56.5	2.9	54.0									
	08	299	52.2	21.0	283	09.9	10.2	27	53.6	3.0	54.0									
	09	314	52.1	21.1	297	39.1	10.3	27	50.6	3.1	54.0									
MONDAY	10	329	52.0	21.2	312	08.4	10.3	27	47.5	3.3	54.0									
	11	344	51.8	21.3	326	37.7	10.3	27	44.2	3.4	53.9									
	12	359	51.7	N 23	21.4	341	07.0	10.3	N 27	40.8	3.5	53.9	N 72	□	□	□	□	□	□	
	13	14	51.5	21.5	355	36.3	10.4	27	37.3	3.7	53.9	N 70	□	□	□	□	□	□		
	14	29	51.4	21.6	10	05.7	10.4	27	33.6	3.8	53.9	68	□	□	□	□	□	□		
	15	44	51.3	21.7	24	35.1	10.5	27	29.8	3.9	53.9	66	22 29			□	□	□	02 07	
	16	59	51.1	21.7	39	04.6	10.5	27	25.9	4.1	53.9	64	21 52			□	□	□	00 54	
	17	74	51.0	21.8	53	34.1	10.6	27	21.8	4.2	53.9	62	21 26	23 10		23 21	23 43	23 51	23 54	
	18	89	50.9	N 23	21.9	68	03.7	10.6	N 27	17.6	4.3	53.9	60	21 05	22 21		22 44	23 14	23 30	23 39
	19	104	50.7	22.0	82	33.3	10.6	27	13.3	4.4	53.9	N 58	20 48	21 51		22 18	22 52	23 13	23 27	
20	119	50.6	22.1	97	02.9	10.7	27	08.9	4.6	54.0	56	20 34	21 29	23 15	21 57	22 34	22 59	23 16		
21	134	50.5	22.2	111	32.6	10.7	27	04.3	4.7	54.0	54	20 24	21 29	23 15	21 57	22 34	22 59	23 16		
22	149	50.3	22.2	126	02.3	10.8	26	59.6	4.8	54.0	52	20 22	21 11	22 29	21 39	22 18	22 46	23 06		
23	164	50.2	22.3	140	32.1	10.8	26	54.8	4.9	54.0	50	20 11	20 56	22 01	21 24	22 05	22 35	22 57		
24											45	19 49	20 26	21 16	20 54	21 37	22 11	22 39		
17	00	179	50.1	N 23	22.4	155	01.9	10.9	N 26	49.9	5.1	54.0	N 40	19 31	20 04	20 45	20 30	21 15	21 52	22 23
	01	194	49.9	22.5	169	31.8	10.9	26	44.8	5.2	54.0	35	19 16	19 45	20 22	20 11	20 57	21 37	22 10	
	02	209	49.8	22.6	184	01.7	11.0	26	39.6	5.3	54.0	30	19 03	19 30	20 03	19 54	20 41	21 23	21 59	
	03	224	49.7	22.6	198	31.7	11.0	26	34.3	5.5	54.0	20	18 41	19 05	19 35	19 26	20 15	20 59	21 40	
	04	239	49.5	22.7	213	01.7	11.0	26	28.8	5.5	54.0	N 10	18 22	18 45	19 12	19 02	19 52	20 39	21 22	
	05	254	49.4	22.8	227	31.7	11.2	26	23.3	5.7	54.0	0	18 04	18 27	18 53	18 39	19 30	20 20	21 06	
	06	269	49.2	N 23	22.9	242	01.9	11.1	N 26	17.6	5.8	54.0	S 10	17 47	18 10	18 36	18 17	19 09	20 00	20 50
	07	284	49.1	22.9	256	32.0	11.3	26	11.8	5.9	54.0	20	17 28	17 52	18 20	17 52	18 46	19 40	20 33	
	08	299	49.0	23.0	271	02.3	11.2	26	05.9	6.1	54.0	30	17 07	17 34	18 03	17 24	18 19	19 15	20 13	
	09	314	48.8	23.1	285	32.5	11.4	25	59.8	6.2	54.0	35	16 55	17 23	17 55	17 07	18 03	19 01	20 01	
TUESDAY	10	329	48.7	23.2	300	02.9	11.4	25	53.6	6.2	54.0	40	16 41	17 11	17 45	16 47	17 44	18 45	19 47	
	11	344	48.6	23.2	314	33.3	11.4	25	47.4	6.4	54.0	45	16 24	16 58	17 35	16 24	17 21	18 25	19 31	
	12	359	48.4	N 23	23.3	329	03.7	11.5	N 25	41.0	6.6	54.0	S 50	16 03	16 42	17 23	15 53	16 52	18 00	19 11
	13	14	48.3	23.4	343	34.2	11.6	25	34.4	6.6	54.0	52	15 53	16 34	17 18	15 37	16 38	17 48	19 01	
	14	29	48.2	23.4	358	04.8	11.6	25	27.8	6.8	54.0	54	15 42	16 26	17 12	15 19	16 21	17 34	18 51	
	15	44	48.0	23.5	12	35.4	11.6	25	21.0	6.8	54.0	56	15 30	16 17	17 06	14 58	16 01	17 17	18 38	
	16	59	47.9	23.6	27	06.0	11.8	25	14.2	7.0	54.0	58	15 15	16 07	16 59	14 30	15 37	16 58	18 24	
	17	74	47.8	23.6	41	36.8	11.8	25	07.2	7.1	54.0	S 60	14 58	15 55	16 52	13 49	15 03	16 33	18 07	
	18	89	47.6	N 23	23.7	56	07.6	11.8	N 25	00.1	7.2	54.0								
	19	104	47.5	23.8	70	38.4	11.9	24	52.9	7.3	54.0									
20	119	47.3	23.8	85	09.3	12.0	24	45.6	7.5	54.0										
21	134	47.2	23.9	99	40.3	12.0	24	38.1	7.5	54.0										
22	149	47.1	24.0	114	11.3	12.0</														

G.M.T.		ARIES		VENUS -3.9		MARS -1.8		JUPITER -1.6		SATURN +0.6		STARS		
G.H.A.		G.H.A. Dec.		G.H.A. Dec.		G.H.A. Dec.		G.H.A. Dec.		G.H.A. Dec.		Name	S.H.A.	Dec.
d h	m	d	m	d	m	d	m	d	m	d	m			
18 WEDNESDAY	00	266 03.4	226 42.5 N12 23.5	24 07.3 S23 49.2	88 13.2 N 2 23.3	231 57.7 N11 12.6	Acamar	315 43.7	S 40 25.3					
	01	281 05.9	241 42.6 24.2	39 10.5 49.2	103 15.5 23.2	246 59.9 12.7	Achernar	335 51.4	S 57 23.2					
	02	296 08.4	256 42.7 24.9	54 13.7 49.1	118 17.8 23.1	262 02.2 12.8	Acrux	173 46.8	S 62 56.1					
	03	311 10.8	271 42.9 25.5	69 16.9 49.1	133 20.1 23.0	277 04.4 12.8	Adhara	255 39.0	S 28 55.7					
	04	326 13.3	286 43.0 26.2	84 20.1 49.1	148 22.4 22.9	292 06.6 12.9	Aldebaran	291 27.9	N 16 27.0					
	05	341 15.8	301 43.1 26.9	99 23.2 49.0	163 24.7 22.8	307 08.9 13.0								
	06	356 18.2	316 43.2 N12 27.6	114 26.4 S23 49.0	178 27.0 N 2 22.8	322 11.1 N11 13.1	Alioth	166 49.3	N 56 07.7					
	07	11 20.7	331 43.3 28.3	129 29.6 49.0	193 29.3 22.7	337 13.3 13.0	Alkaid	153 24.5	N 49 28.1					
	08	26 23.1	346 43.4 28.9	144 32.8 49.0	208 31.6 22.6	352 15.6 13.2	Al Na'ir	28 24.9	S 47 06.4					
	09	41 25.6	1 43.5 29.6	159 36.0 48.9	223 33.9 22.5	7 17.8 13.3	Anilim	276 20.4	S 1 13.1					
	10	56 28.1	16 43.6 30.3	174 39.1 48.9	238 36.2 22.4	22 20.0 13.3	Alphard	218 28.9	S 8 31.5					
	11	71 30.5	31 43.7 31.0	189 42.3 48.9	253 38.5 22.3	37 22.3 13.4								
	12	86 33.0	46 43.8 N12 31.7	204 45.5 S23 48.8	268 40.8 N 2 22.3	52 24.5 N11 13.5	Alphecca	126 38.7	N 26 49.0					
	13	101 35.5	61 43.9 32.3	219 48.7 48.8	283 43.1 22.2	67 26.7 13.6	Alpheratz	358 18.0	N 28 55.2					
	14	116 37.9	76 44.0 33.0	234 51.8 48.8	298 45.4 22.1	82 29.0 13.6	Altair	62 40.3	N 8 47.0					
	15	131 40.4	91 44.1 33.7	249 55.0 48.7	313 47.7 22.0	97 31.2 13.7	Ankaa	353 48.2	S 42 28.0					
	16	146 42.9	106 44.2 34.4	264 58.2 48.7	328 50.0 21.9	112 33.4 13.8	Antares	113 06.7	S 26 22.1					
	17	161 45.3	121 44.3 35.1	280 01.3 48.7	343 52.2 21.8	127 35.7 13.8								
	18	176 47.8	136 44.4 N12 35.7	295 04.5 S23 48.6	358 54.5 N 2 21.8	142 37.9 N11 13.9	Arcturus	146 25.7	N 19 20.5					
	19	191 50.3	151 44.5 36.4	310 07.7 48.6	13 56.8 21.7	157 40.1 14.0	Atria	108 37.9	S 68 58.7					
	20	206 52.7	166 44.6 37.1	325 10.8 48.6	28 59.1 21.6	172 42.4 14.1	Avior	234 32.3	S 59 24.7					
	21	221 55.2	181 44.7 37.8	340 14.0 48.5	44 01.4 21.5	187 44.6 14.1	Bellatrix	279 07.9	N 6 19.5					
	22	236 57.6	196 44.8 38.5	355 17.2 48.5	59 03.7 21.4	202 46.8 14.2	Betelgeuse	271 37.6	N 7 24.3					
	23	252 00.1	211 44.9 39.1	10 20.3 48.5	74 06.0 21.3	217 49.1 14.3								
19	00	267 02.6	226 45.0 N12 39.8	25 23.5 S23 48.4	89 08.3 N 2 21.3	232 51.3 N11 14.3	Canopus	264 11.5	S 52 40.6					
	01	282 05.0	241 45.1 40.5	40 26.6 48.4	104 10.6 21.2	247 53.5 14.4	Capella	281 24.0	N 45 58.2					
	02	297 07.5	256 45.2 41.2	55 29.8 48.4	119 12.9 21.1	262 55.8 14.5	Deneb	49 53.9	N 45 10.0					
	03	312 10.0	271 45.3 41.9	70 33.0 48.3	134 15.2 21.0	277 58.0 14.5	Denebola	183 07.4	N 14 44.6					
	04	327 12.4	286 45.4 42.5	85 36.1 48.3	149 17.5 20.9	293 00.2 14.6	Diphda	349 29.1	S 18 09.1					
	05	342 14.9	301 45.5 43.2	100 39.3 48.3	164 19.8 20.8	308 02.5 14.7								
	06	357 17.4	316 45.6 N12 43.9	115 42.4 S23 48.2	179 22.1 N 2 20.7	323 04.7 N11 14.8	Dubhe	194 32.0	N 61 55.3					
	07	12 19.8	331 45.7 44.6	130 45.6 48.2	194 24.4 20.7	338 06.9 14.8	Elnath	278 55.0	N 28 35.1					
	08	27 22.3	346 45.8 45.3	145 48.7 48.2	209 26.6 20.6	353 09.2 14.9	Eltanin	91 01.0	N 51 29.4					
	09	42 24.8	1 45.9 46.0	160 51.9 48.1	224 28.9 20.5	8 11.4 15.0	Enif	34 19.5	N 9 43.9					
	10	57 27.2	16 45.9 46.6	175 55.0 48.1	239 31.2 20.4	23 13.7 15.0	Fomalhaut	16 00.3	S 29 46.9					
	11	72 29.7	31 46.0 47.3	190 58.2 48.1	254 33.5 20.3	38 15.9 15.1								
	12	87 32.1	46 46.1 N12 48.0	206 01.3 S23 48.0	269 35.8 N 2 20.2	53 18.1 N11 15.2	Gacrux	172 38.2	S 56 56.8					
	13	102 34.6	61 46.2 48.7	221 04.4 48.0	284 38.1 20.2	68 20.4 15.3	Gienah	176 26.5	S 17 22.5					
	14	117 37.1	76 46.3 49.4	236 07.6 48.0	299 40.4 20.1	83 22.6 15.3	Hadar	149 35.1	S 60 13.9					
	15	132 39.5	91 46.4 50.0	251 10.7 47.9	314 42.7 20.0	98 24.8 15.4	Hamal	328 38.5	N 23 19.1					
	16	147 42.0	106 46.5 50.7	266 13.9 47.9	329 45.0 19.9	113 27.1 15.5	Kaus Aust.	84 27.4	S 34 24.2					
	17	162 44.5	121 46.5 51.4	281 17.0 47.9	344 47.3 19.8	128 29.3 15.5								
	18	177 46.9	136 46.6 N12 52.1	296 20.2 S23 47.9	359 49.5 N 2 19.7	143 31.5 N11 15.6	Kochab	137 17.1	N 74 16.9					
	19	192 49.4	151 46.7 52.8	311 23.3 47.8	14 51.8 19.6	158 33.8 15.7	Markab	14 11.4	N 15 02.3					
	20	207 51.9	166 46.8 53.4	326 26.4 47.8	29 54.1 19.6	173 36.0 15.8	Menkar	314 50.0	N 3 58.4					
	21	222 54.3	181 46.9 54.1	341 29.6 47.8	44 56.4 19.5	188 38.2 15.8	Menkent	148 46.7	S 36 13.5					
	22	237 56.8	196 46.9 54.8	356 32.7 47.7	59 58.7 19.4	203 40.5 15.9	Miaplacidus	221 47.8	S 69 35.6					
	23	252 59.3	211 47.0 55.5	11 35.8 47.7	75 01.0 19.3	218 42.7 16.0								
20	00	268 01.7	226 47.1 N12 56.2	26 39.0 S23 47.7	90 03.3 N 2 19.2	233 45.0 N11 16.0	Mirfak	309 28.5	N 49 45.2					
	01	283 04.2	241 47.2 56.9	41 42.1 47.6	105 05.6 19.1	248 47.2 16.1	Nunki	76 39.0	S 26 20.3					
	02	298 06.6	256 47.2 57.5	56 45.2 47.6	120 07.8 19.0	263 49.4 16.2	Peacock	54 10.7	S 56 50.0					
	03	313 09.1	271 47.3 58.2	71 48.3 47.6	135 10.1 18.9	278 51.7 16.2	Pollux	244 08.6	N 28 06.3					
	04	328 11.6	286 47.4 58.9	86 51.5 47.5	150 12.4 18.9	293 53.9 16.3	Procyon	245 34.7	N 5 18.4					
	05	343 14.0	301 47.5 12 59.6	101 54.6 47.5	165 14.7 18.8	308 56.1 16.4								
	06	358 16.5	316 47.5 N13 00.3	116 57.7 S23 47.5	180 17.0 N 2 18.7	323 58.4 N11 16.5	Rasalhague	96 36.9	N 12 34.7					
	07	13 19.0	331 47.6 00.9	132 00.8 47.4	195 19.3 18.6	339 00.6 16.5	Regulus	208 18.9	N 12 07.1					
	08	28 21.4	346 47.7 01.6	147 03.9 47.4	210 21.6 18.5	354 02.9 16.6	Rigel	281 44.3	S 8 14.0					
	09	43 23.9	1 47.7 02.3	162 07.1 47.4	225 23.8 18.4	9 05.1 16.7	Rigel Kent.	140 36.9	S 60 42.8					
	10	58 26.4	16 47.8 03.0	177 10.2 47.3	240 26.1 18.3	24 07.3 16.7	Sabik	102 50.3	S 15 41.5					
	11	73 28.8	31 47.9 03.7	192 13.3 47.3	255 28.4 18.2	39 09.6 16.8								
	12	88 31.3	46 47.9 N13 04.3	207 16.4 S23 47.3	270 30.7 N 2 18.2	54 11.8 N11 16.9	Schedar	350 18.9	N 56 22.0					
	13	103 33.7	61 48.0 05.0	222 19.5 47.3	285 33.0 18.1	69 14.0 16.9	Shaula	97 06.6	S 37 05.1					
	14	118 36.2	76 48.1 05.7	237 22.6 47.2	300 35.3 18.0	84 16.3 17.0	Sirius	259 03.4	S 16 40.3					
	15	133 38.7	91 48.1 06.4	252 25.7 47.2	315 37.6 17.9	99 18.5 17.1	Spica	159 06.2	S 11 00.3					
	16	148 41.1	106 48.2 07.1	267 28.8 47.2	330 39.8 17.8	114 20.8 17.1	Suhail	223 17.3	S 43 18.6					
	17	163 43.6	121 48.3 07.7	282 32.0 47.1	345 42.1 17.7	129 23.0 17.2								
	18	178 46.1	136 48.3 N13 08.4	297 35.1 S23 47.1	0 44.4 N 2 17.6	144 25.2 N11 17.3	Vega	81 01.0	N 38 45.1					
	19	193 48.5	151 48.4 09.1	312 38.2 47.1	15 46.7 17.5	159 27.5 17.4	Zuben'ubi	137 42.0	S 15 55.1					
	20	208 51.0	166 48.4 09.8	327 41.3 47.0	30 49.0 17.4	174 29.7 17.4								
	21	223 53.5	181 48.5 10.5	342 44.4 47.0	45 51.3 17.4	189 31.9 17.5								
	22	238 55.9	196 48.6 11.2	357 47.5 47.0	60 53.5 17.3	204 34.2 17.6								
	23	253 58.4	211 48.6 11.8	12 50.6 47.0	75 55.8 17.2	219 36.4 17.6								
Mer. Pass.		6 10.8	d 0.1	v 3.1 d 0.0	v 2.3 d 0.1	v 2.2 d 0.1	S.H.A.		Mer. Pass.					

G.M.T.		SUN				MOON				Lat.	Twilight		Sun-rise	Moonrise							
		G.H.A.		Dec.		G.H.A.		Dec.			Naut. Civil			18	19	20	21				
d	h	°	'	°	'	°	'	°	'	°	'	h	m	h	m	h	m	h	m	h	m
18	00	179	46.8	N 23	24.1	143	13.5	12.2	N 24	15.2	7.9	54.0									
	01	194	46.7		24.2	157	44.7	12.2	24	07.3	8.0	54.1					03 42	07 04	09 11		
	02	209	46.5		24.2	172	15.9	12.4	23	59.3	8.1	54.1					05 12	07 28	09 22		
	03	224	46.4		24.3	186	47.3	12.3	23	51.2	8.1	54.1					05 52	07 47	09 32		
	04	239	46.3		24.3	201	18.6	12.5	23	43.1	8.3	54.1					06 18	08 02	09 40		
	05	254	46.1		24.4	215	50.1	12.5	23	34.8	8.4	54.1					06 38	08 14	09 46		
WEDNESDAY	06	269	46.0	N 23	24.4	230	21.6	12.5	N 23	26.4	8.5	54.1					06 55	08 25	09 52		
	07	284	45.8		24.5	244	53.1	12.6	23	17.9	8.6	54.1					07 09	08 34	09 57		
	08	299	45.7		24.6	259	24.7	12.7	23	09.3	8.8	54.1					07 21	08 41	10 01		
	09	314	45.6		24.6	273	56.4	12.7	23	00.5	8.8	54.1					07 31	08 49	10 05		
	10	329	45.4		24.7	288	28.1	12.8	22	51.7	8.9	54.1					07 40	08 55	10 09		
	11	344	45.3		24.7	302	59.9	12.9	22	42.8	9.0	54.1					07 48	09 00	10 12		
12	12	359	45.2	N 23	24.8	317	31.8	12.9	N 22	33.8	9.1	54.1					07 59	08 06	09 13		
	13	14	45.0		24.8	332	03.7	13.0	22	24.7	9.2	54.1					08 20	09 23	10 25		
	14	29	44.9		24.9	346	35.7	13.0	22	15.5	9.3	54.1					08 32	09 31	10 30		
	15	44	44.8		24.9	1	07.7	13.1	22	06.2	9.4	54.2					08 42	09 39	10 34		
	16	59	44.6		25.0	15	39.8	13.2	21	56.8	9.5	54.2					08 51	09 51	10 42		
	17	74	44.5		25.0	30	12.0	13.2	21	47.3	9.6	54.2					09 05	10 03	10 49		
18	18	89	44.3	N 23	25.1	44	44.2	13.2	N 21	37.7	9.7	54.2					09 15	10 13	10 55		
	19	104	44.2		25.1	59	16.4	13.3	21	28.0	9.7	54.2					09 26	10 24	11 01		
	20	119	44.1		25.2	73	48.8	13.4	21	18.3	9.9	54.2					09 37	10 35	11 08		
	21	134	43.9		25.2	88	21.2	13.4	21	08.4	10.0	54.2					09 48	10 46	11 15		
	22	149	43.8		25.3	102	53.6	13.5	20	58.4	10.0	54.2					09 59	10 57	11 24		
	23	164	43.7		25.3	117	26.1	13.6	20	48.4	10.2	54.2					10 10	11 08	11 30		
19	00	179	43.5	N 23	25.4	131	58.7	13.6	N 20	38.2	10.2	54.2					10 21	11 19	11 40		
	01	194	43.4		25.4	146	31.3	13.7	20	28.0	10.3	54.3					10 32	11 29	11 47		
	02	209	43.2		25.4	161	04.0	13.7	20	17.7	10.4	54.3					10 43	11 34	11 43		
	03	224	43.1		25.5	175	36.7	13.8	20	07.3	10.5	54.3					10 54	11 41	11 47		
	04	239	43.0		25.5	190	09.5	13.8	19	56.8	10.6	54.3					11 05	11 48	11 51		
	05	254	42.8		25.6	204	42.3	13.9	19	46.2	10.7	54.3					11 16	11 56	11 55		
THURSDAY	06	269	42.7	N 23	25.6	219	15.2	14.0	N 19	35.5	10.7	54.3					11 27	12 04			
	07	284	42.6		25.7	233	48.2	14.0	19	24.8	10.9	54.3					11 38				
	08	299	42.4		25.7	248	21.2	14.0	19	13.9	10.9	54.3					11 49				
	09	314	42.3		25.7	262	54.2	14.1	19	03.0	11.0	54.4					12 00				
	10	329	42.2		25.8	277	27.3	14.2	18	52.0	11.1	54.4					12 11				
	11	344	42.0		25.8	292	00.5	14.2	18	40.9	11.1	54.4					12 22				
12	12	359	41.9	N 23	25.8	306	33.7	14.3	N 18	29.8	11.3	54.4					12 33				
	13	14	41.7		25.9	321	07.0	14.3	18	18.5	11.3	54.4					12 44				
	14	29	41.6		25.9	335	40.3	14.4	18	07.2	11.4	54.4					12 55				
	15	44	41.5		25.9	350	13.7	14.4	17	55.8	11.5	54.4					13 06				
	16	59	41.3		26.0	4	47.1	14.4	17	44.3	11.5	54.5					13 17				
	17	74	41.2		26.0	19	20.5	14.6	17	32.8	11.6	54.5					13 28				
18	18	89	41.1	N 23	26.0	33	54.1	14.5	N 17	21.2	11.8	54.5					13 39				
	19	104	40.9		26.1	48	27.6	14.6	17	09.4	11.7	54.5					13 50				
	20	119	40.8		26.1	63	01.2	14.7	16	57.7	11.9	54.5					14 01				
	21	134	40.7		26.1	77	34.9	14.7	16	45.8	11.9	54.5					14 12				
	22	149	40.5		26.2	92	08.6	14.7	16	33.9	12.0	54.6					14 23				
	23	164	40.4		26.2	106	42.3	14.8	16	21.9	12.1	54.6					14 34				
20	00	179	40.2	N 23	26.2	121	16.1	14.8	N 16	09.8	12.1	54.6					14 45				
	01	194	40.1		26.2	135	49.9	14.9	15	57.7	12.2	54.6					14 56				
	02	209	40.0		26.3	150	23.8	14.9	15	45.5	12.3	54.6					15 07				
	03	224	39.8		26.3	164	57.7	15.0	15	33.2	12.3	54.6					15 18				
	04	239	39.7		26.3	179	31.7	15.0	15	20.9	12.5	54.7					15 29				
	05	254	39.6		26.3	194	05.7	15.0	15	08.4	12.4	54.7					15 40				
12	06	269	39.4	N 23	26.4	208	39.7	15.1	N 14	56.0	12.6	54.7					15 51				
	07	284	39.3		26.4	223	13.8	15.1	14	43.4	12.6	54.7					16 02				
	08	299	39.2		26.4	237	47.9	15.1	14	30.8	12.7	54.7					16 13				
	09	314	39.0		26.4	252	22.0	15.2	14	18.1	12.7	54.7					16 24				
	10	329	38.9		26.5	266	56.2	15.2	14	05.4	12.8	54.8					16 35				
	11	344	38.7		26.5	281	30.4	15.3	13	52.6	12.9	54.8					16 46				
12	12	359	38.6	N 23	26.5	296	04.7	15.3	N 13	39.7	12.9	54.8					16 57				
	13	14	38.5		26.5	310	39.0	15.3	13	26.8	13.0	54.8					17 08				
	14	29	38.3		26.5	325	13.3	15.3	13	13.8	13.1	54.8					17 19				
	15	44	38.2		26.5	339	47.6	15.4	13	00.7	13.1	54.9					17 30				
	16	59	38.1		26.6	354	22.0	15.4	12	47.6	13.1	54.9					17 41				
	17	74	37.9		26.6	8	56.4	15.5	12	34.5	13.3	54.9					17 52				
18	18	89	37.8	N 23	26.6	23	30.9	15.4	N 12	21.2	13.2	54.9					18 03				
	19	104	37.7		26.6	38	05.3	15.5	12	08.0	13.4	54.9					18 14				
	20	119	37.5		26.6	52	39.8	15.6	11	54.6	13.4	55.0					18 25				
	21	134	37.4		26.6	67	14.4	15.5	11	41.2	13.4	55.0					18 36				
	22	149	37.2		26.6	81	48.9	15.6	11	27.8	13.5	55.0					18 47				
	23	164	37.1		26.7	96	23.5	15.6	11	14.3	13.6	55.0					18 58				
S.D. 15.8		d 0.0		S.D. 14.7		14.8		14.9													

G.M.T.		ARIES		VENUS -3.9		MARS -1.7		JUPITER -1.6		SATURN +0.6		STARS			
		G.H.A.	G.H.A. Dec.	G.H.A.	G.H.A. Dec.	G.H.A.	G.H.A. Dec.	G.H.A.	G.H.A. Dec.	G.H.A.	G.H.A. Dec.	Name	S.H.A.	Dec.	
d	h	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "		° ' "	° ' "	
SATURDAY	21 00	269 00.8	226 48.7 N 13 12.5	27 53.7 S 23 46.9	90 58.1 N 2 17.1	234 38.7 N 11 17.7	Acamar	315 43.7	S 40 25.3						
	01	284 03.3	241 48.7 13.2	42 56.8 46.9	106 00.4 17.0	249 40.9 17.8	Acchernar	335 51.4	S 57 23.1						
	02	299 05.8	256 48.8 13.9	57 59.9 46.9	121 02.7 16.9	264 43.1 17.8	Acruz	173 46.8	S 62 56.1						
	03	314 08.2	271 48.8 14.6	73 03.0 46.8	136 04.9 16.8	279 45.4 17.9	Adhara	255 39.0	S 28 55.7						
	04	329 10.7	286 48.9 15.2	88 06.1 46.8	151 07.2 16.7	294 47.6 18.0	Aldebaran	291 27.8	N 16 27.0						
	05	344 13.2	301 49.0 15.9	103 09.1 46.8	166 09.5 16.6	309 49.9 18.0									
	06	359 15.6	316 49.0 N 13 16.6	118 12.2 S 23 46.7	181 11.8 N 2 16.6	324 52.1 N 11 18.1	Alioth	166 49.3	N 56 07.8						
	07	14 18.1	331 49.1 17.3	133 15.3 46.7	196 14.1 16.5	339 54.3 18.2	Alkaid	153 24.5	N 49 28.1						
	08	29 20.6	346 49.1 18.0	148 18.4 46.7	211 16.3 16.4	354 56.6 18.3	Al Na'ir	28 24.9	S 47 06.4						
	09	44 23.0	1 49.2 18.6	163 21.5 46.7	226 18.6 16.3	9 58.8 18.3	Alnilam	276 20.4	S 1 13.1						
	10	59 25.5	16 49.2 19.3	178 24.6 46.6	241 20.9 16.2	25 01.1 18.4	Alphard	218 28.9	S 8 31.5						
	11	74 28.0	31 49.3 20.0	193 27.7 46.6	256 23.2 16.1	40 03.3 18.5									
	12	89 30.4	46 49.3 N 13 20.7	208 30.7 S 23 46.6	271 25.5 N 2 16.0	55 05.5 N 11 18.5	Alphecca	126 38.7	N 26 49.0						
	13	104 32.9	61 49.4 21.4	223 33.8 46.5	286 27.7 15.9	70 07.8 18.6	Alpheratz	358 18.0	N 28 55.2						
	14	119 35.3	76 49.4 22.1	238 36.9 46.5	301 30.0 15.8	85 10.0 18.7	Altair	62 40.3	N 8 47.0						
	15	134 37.8	91 49.4 22.7	253 40.0 46.5	316 32.3 15.7	100 12.3 18.7	Ankaa	353 48.2	S 42 28.0						
	16	149 40.3	106 49.5 23.4	268 43.1 46.5	331 34.6 15.7	115 14.5 18.8	Antares	113 06.7	S 26 22.1						
	17	164 42.7	121 49.5 24.1	283 46.1 46.4	346 36.8 15.6	130 16.8 18.9									
	18	179 45.2	136 49.6 N 13 24.8	298 49.2 S 23 46.4	1 39.1 N 2 15.5	145 19.0 N 11 18.9	Arcturus	146 25.7	N 19 20.5						
	19	194 47.7	151 49.6 25.5	313 52.3 46.4	16 41.4 15.4	160 21.2 19.0	Atria	108 37.9	S 68 58.7						
	20	209 50.1	166 49.7 26.1	328 55.3 46.3	31 43.7 15.3	175 23.5 19.1	Avior	234 32.3	S 59 24.7						
	21	224 52.6	181 49.7 26.8	343 58.4 46.3	46 46.0 15.2	190 25.7 19.1	Bellatrix	279 07.9	N 6 19.5						
	22	239 55.1	196 49.7 27.5	359 01.5 46.3	61 48.2 15.1	205 28.0 19.2	Betelgeuse	271 37.6	N 7 24.3						
	23	254 57.5	211 49.8 28.2	14 04.6 46.2	76 50.5 15.0	220 30.2 19.3									
SUNDAY	22 00	270 00.0	226 49.8 N 13 28.9	29 07.6 S 23 46.2	91 52.8 N 2 14.9	235 32.5 N 11 19.3	Canopus	264 11.5	S 52 40.6						
	01	285 02.5	241 49.9 29.5	44 10.7 46.2	106 55.1 14.8	250 34.7 19.4	Capella	281 24.0	N 45 58.2						
	02	300 04.9	256 49.9 30.2	59 13.7 46.2	121 57.3 14.7	265 36.9 19.5	Deneb	49 53.9	N 45 10.0						
	03	315 07.4	271 49.9 30.9	74 16.8 46.1	136 59.6 14.6	280 39.2 19.5	Denebola	183 07.4	N 14 44.6						
	04	330 09.8	286 50.0 31.6	89 19.9 46.1	152 01.9 14.6	295 41.4 19.6	Diphda	349 29.1	S 18 09.1						
	05	345 12.3	301 50.0 32.3	104 22.9 46.1	167 04.2 14.5	310 43.7 19.7									
	06	0 14.8	316 50.0 N 13 32.9	119 26.0 S 23 46.0	182 06.4 N 2 14.4	325 45.9 N 11 19.7	Dubhe	194 32.1	N 61 55.3						
	07	15 17.2	331 50.1 33.6	134 29.0 46.0	197 08.7 14.3	340 48.1 19.8	Elmath	278 55.0	N 28 35.1						
	08	30 19.7	346 50.1 34.3	149 32.1 46.0	212 11.0 14.2	355 50.4 19.9	Eltanin	91 01.0	N 51 29.4						
	09	45 22.2	1 50.1 35.0	164 35.1 46.0	227 13.3 14.1	10 52.6 20.0	Enif	34 19.5	N 9 43.9						
	10	60 24.6	16 50.2 35.7	179 38.2 45.9	242 15.5 14.0	25 54.9 20.0	Fomalhaut	16 00.3	S 29 46.9						
	11	75 27.1	31 50.2 36.3	194 41.3 45.9	257 17.8 13.9	40 57.1 20.1									
	12	90 29.6	46 50.2 N 13 37.0	209 44.3 S 23 45.9	272 20.1 N 2 13.8	55 59.4 N 11 20.2	Gacrux	172 38.2	S 56 56.8						
	13	105 32.0	61 50.3 37.7	224 47.4 45.9	287 22.3 13.7	71 01.6 20.2	Gienah	176 26.5	S 17 22.5						
	14	120 34.5	76 50.3 38.4	239 50.4 45.8	302 24.6 13.6	86 03.8 20.3	Hadar	149 35.1	S 60 13.9						
	15	135 37.0	91 50.3 39.1	254 53.4 45.8	317 26.9 13.5	101 06.1 20.4	Hamal	328 38.5	N 23 19.1						
	16	150 39.4	106 50.3 39.7	269 56.5 45.8	332 29.2 13.4	116 08.3 20.4	Kaus Aust.	84 27.4	S 34 24.2						
	17	165 41.9	121 50.4 40.4	284 59.5 45.7	347 31.4 13.3	131 10.6 20.5									
	18	180 44.3	136 50.4 N 13 41.1	300 02.6 S 23 45.7	2 33.7 N 2 13.2	146 12.8 N 11 20.6	Kochab	137 17.2	N 74 17.0						
	19	195 46.8	151 50.4 41.8	315 05.6 45.7	17 36.0 13.2	161 15.1 20.6	Markab	14 11.4	N 15 02.3						
	20	210 49.3	166 50.4 42.5	330 08.6 45.7	32 38.2 13.1	176 17.3 20.7	Menkar	314 50.0	N 3 58.4						
	21	225 51.7	181 50.4 43.1	345 11.7 45.6	47 40.5 13.0	191 19.6 20.8	Menkent	148 46.7	S 36 13.5						
	22	240 54.2	196 50.5 43.8	0 14.7 45.6	62 42.8 12.9	206 21.8 20.8	Miaplacidus	221 47.8	S 69 35.6						
	23	255 56.7	211 50.5 44.5	15 17.8 45.6	77 45.1 12.8	221 24.0 20.9									
MONDAY	23 00	270 59.1	226 50.5 N 13 45.2	30 20.8 S 23 45.6	92 47.3 N 2 12.7	236 26.3 N 11 21.0	Mirfak	309 28.5	N 49 45.5						
	01	286 01.6	241 50.5 45.8	45 23.8 45.5	107 49.6 12.6	251 28.5 21.0	Nunki	76 39.0	S 26 20.3						
	02	301 04.1	256 50.5 46.5	60 26.9 45.5	122 51.9 12.5	266 30.8 21.1	Peacock	54 10.7	S 56 50.0						
	03	316 06.5	271 50.6 47.2	75 29.9 45.5	137 54.1 12.4	281 33.0 21.2	Pollux	244 08.6	N 28 06.3						
	04	331 09.0	286 50.6 47.9	90 32.9 45.4	152 56.4 12.3	296 35.3 21.2	Procyon	245 34.7	N 5 18.4						
	05	346 11.5	301 50.6 48.6	105 35.9 45.4	167 58.7 12.2	311 37.5 21.3									
	06	1 13.9	316 50.6 N 13 49.2	120 39.0 S 23 45.4	183 00.9 N 2 12.1	326 39.8 N 11 21.4	Rasalhague	96 36.9	N 12 34.7						
	07	16 16.4	331 50.6 49.9	135 42.0 45.4	198 03.2 12.0	341 42.0 21.4	Regulus	208 18.9	N 12 07.2						
	08	31 18.8	346 50.6 50.6	150 45.0 45.3	213 05.5 11.9	356 44.2 21.5	Rigel	281 44.3	S 8 14.0						
	09	46 21.3	1 50.7 51.3	165 48.0 45.3	228 07.7 11.8	11 46.5 21.6	Rigel Kent.	140 36.9	S 60 42.8						
	10	61 23.8	16 50.7 52.0	180 51.0 45.3	243 10.0 11.7	26 48.7 21.6	Sabik	102 50.3	S 15 41.5						
	11	76 26.2	31 50.7 52.6	195 54.1 45.3	258 12.3 11.6	41 51.0 21.7									
	12	91 28.7	46 50.7 N 13 53.3	210 57.1 S 23 45.2	273 14.5 N 2 11.5	56 53.2 N 11 21.8	Schedar	350 18.8	N 56 22.0						
	13	106 31.2	61 50.7 54.0	226 00.1 45.2	288 16.8 11.5	71 55.5 21.8	Shaula	97 06.6	S 37 05.1						
	14	121 33.6	76 50.7 54.7	241 03.1 45.2	303 19.1 11.4	86 57.7 21.9	Sirius	259 03.3	S 16 40.3						
	15	136 36.1	91 50.7 55.3	256 06.1 45.2	318 21.3 11.3	102 00.0 22.0	Spica	159 06.2	S 11 00.3						
	16	151 38.6	106 50.7 56.0	271 09.1 45.1	333 23.6 11.2	117 02.2 22.0	Suhail	223 17.3	S 43 18.6						
	17	166 41.0	121 50.7 56.7	286 12.1 45.1	348 25.9 11.1	132 04.5 22.1									
	18	181 43.5	136 50.7 N 13 57.4	301 15.1 S 23 45.1	3 28.1 N 2 11.0	147 06.7 N 11 22.2	Vega	81 01.0	N 38 45.1						
	19	196 46.0	151 50.7 58.1	316 18.1 45.1	18 30.4 10.9	162 09.0 22.2	Zuben'ubi	137 42.0	S 15 55.1						
	20	211 48.4	166 50.7 58.7	331 21.1 45.0	33 32.7 10.8	177 11.2 22.3									
	21	226 50.9	181 50.7 59.4	346 24.1 45.0	48 34.9 10.7	192 13.5 22.4									
	22	241 53.3	196 50.8 14 00.1	1 27.1 45.0	63 37.2 10.6	207 15.7 22.4	Venus	316 49.8	h 53						
	23	256 55.8	211 50.8 00.8	16 30.1 45.0	78 39.5 10.5	222 17.9 22.5	Mars	119 07.6	21 59						
Mer. Pass.		5 59.0	v 0.0 d 0.7	v 3.0 d 0.0	v 2.3 d 0.1	v 2.2 d 0.1									
			</												

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise							
		G.H.A.	Dec.	G.H.A.	v	Dec.	d		H.P.	Naut.		Civil	21	22	23	24			
d	h	°	'	°	'	°	'	°	h	m	h	m	h	m	h	m	h	m	
21	00	179	37.0	N 23	26.7	110	58.1	15.6	N 11	00.7	13.6	55.1		08 57	11 04	13 12	15 33		
	01	194	36.8		26.7	125	32.7	15.6		10 47.1	13.7	55.1		09 11	11 08	13 05	15 14		
	02	209	36.7		26.7	140	07.3	15.6		10 33.4	13.7	55.1		09 22	11 11	13 01	14 59		
	03	224	36.6		26.7	154	41.9	15.7		10 19.7	13.7	55.1		09 32	11 13	12 56	14 47		
	04	239	36.4		26.7	169	16.6	15.7		10 06.0	13.9	55.2		09 40	11 15	12 53	14 37		
S A T U R D A Y	05	254	36.3		26.7	183	51.3	15.7		9 52.1	13.8	55.2		02 09	09 46	11 17	12 50		
	06	269	36.2	N 23	26.7	198	26.0	15.7	N 9	38.3	13.9	55.2		02 36	09 52	11 19	12 47		
	07	284	36.0		26.7	213	00.7	15.8		9 24.4	14.0	55.2		02 56	10 01	11 21	12 43		
	08	299	35.9		26.7	227	35.5	15.7		9 10.4	14.0	55.2		03 13	10 05	11 22	12 41		
	09	314	35.8		26.7	242	10.2	15.8		8 56.4	14.1	55.3		03 27	10 09	11 23	12 40		
R E D A Y	10	329	35.6		26.7	256	45.0	15.7		8 42.3	14.1	55.3		03 40	10 12	11 24	12 38		
	11	344	35.5		26.7	271	19.7	15.8		8 28.2	14.1	55.3		03 51	10 19	11 26	12 35		
	12	359	35.3	N 23	26.7	285	54.5	15.8	N 8	14.1	14.2	55.3		04 13	10 25	11 28	12 32		
	13	14	35.2		26.7	300	29.3	15.8		7 59.9	14.2	55.4		04 31	10 30	11 29	12 30		
	14	29	35.1		26.7	315	04.1	15.8		7 45.7	14.3	55.4		04 59	10 34	11 31	12 28		
	15	44	34.9		26.7	329	38.9	15.8		7 31.4	14.3	55.4		05 22	10 42	11 33	12 25		
	16	59	34.8		26.7	344	13.7	15.8		7 17.1	14.4	55.5		05 41	10 49	11 35	12 22		
	17	74	34.7		26.7	358	48.5	15.8		7 02.7	14.4	55.5		05 58	10 55	11 37	12 19		
	18	89	34.5	N 23	26.7	13	23.3	15.9	N 6	48.3	14.4	55.5		06 16	11 01	11 38	12 16		
	19	104	34.4		26.7	27	58.2	15.8		6 33.9	14.5	55.5		06 34	11 08	11 40	12 13		
	20	119	34.3		26.7	42	33.0	15.8		6 19.4	14.5	55.6		06 59	11 15	11 42	12 10		
	21	134	34.1		26.7	57	07.8	15.8		6 04.9	14.6	55.6		07 08	11 19	11 44	12 08		
	22	149	34.0		26.7	71	42.6	15.8		5 50.3	14.5	55.6		07 17	11 24	11 45	12 06		
	23	164	33.8		26.7	86	17.4	15.8		5 35.8	14.7	55.6		07 28	11 30	11 47	12 04		
	22	00	179	33.7	N 23	26.7	100	52.2	15.8	N 5	21.1	14.6	55.7		07 39	11 37	11 49	12 01	
01		194	33.6		26.7	115	27.0	15.8		5 06.5	14.7	55.7		07 45	11 40	11 50	12 00		
02		209	33.4		26.7	130	01.8	15.8		4 51.8	14.8	55.7		06 51	11 43	11 51	11 58		
03		224	33.3		26.7	144	36.6	15.8		4 37.0	14.7	55.8		06 57	11 47	11 52	11 57		
04		239	33.2		26.7	159	11.4	15.8		4 22.3	14.8	55.8		07 04	11 51	11 53	11 55		
	05	254	33.0		26.7	173	46.2	15.7		4 07.5	14.8	55.8		07 11	11 55	11 54	11 53		
	06	269	32.9	N 23	26.6	188	20.9	15.8	N 3	52.7	14.9	55.9							
	07	284	32.8		26.6	202	55.7	15.7		3 37.8	14.9	55.9							
	08	299	32.6		26.6	217	30.4	15.7		3 22.9	14.9	55.9							
	09	314	32.5		26.6	232	05.1	15.7		3 08.0	14.9	55.9							
S U N D A Y	10	329	32.4		26.6	246	39.8	15.7		2 53.1	15.0	56.0							
	11	344	32.2		26.6	261	14.5	15.7		2 38.1	15.0	56.0							
	12	359	32.1	N 23	26.6	275	49.2	15.6	N 2	23.1	15.0	56.0							
	13	14	32.0		26.5	290	23.8	15.6		2 08.1	15.1	56.1							
	14	29	31.8		26.5	304	58.4	15.6		1 53.0	15.1	56.1							
	15	44	31.7		26.5	319	33.0	15.6		1 37.9	15.1	56.1							
	16	59	31.5		26.5	334	07.6	15.6		1 22.8	15.1	56.2							
	17	74	31.4		26.5	348	42.2	15.5		1 07.7	15.1	56.2							
	18	89	31.3	N 23	26.5	3	16.7	15.5	N 0	52.6	15.2	56.2							
	19	104	31.1		26.4	17	51.2	15.4		0 37.4	15.2	56.3							
	20	119	31.0		26.4	32	25.6	15.5		0 22.2	15.2	56.3							
	21	134	30.9		26.4	47	00.1	15.4	N 0	0 07.0	15.2	56.3							
	22	149	30.7		26.4	61	34.5	15.3	S 0	0 08.2	15.2	56.4							
	23	164	30.6		26.3	76	08.8	15.4		0 23.4	15.3	56.4							
	23	00	179	30.5	N 23	26.3	90	43.2	15.3	S 0	0 38.7	15.2	56.4						
01		194	30.3		26.3	105	17.5	15.2		0 53.9	15.3	56.5							
02		209	30.2		26.3	119	51.7	15.2		1 09.2	15.3	56.5							
03		224	30.1		26.2	134	25.9	15.2		1 24.5	15.3	56.5							
04		239	29.9		26.2	149	00.1	15.1		1 39.8	15.3	56.6							
	05	254	29.8		26.2	163	34.2	15.1		1 55.1	15.4	56.6							
	06	269	29.7	N 23	26.2	178	08.3	15.1	S 2	1 10.5	15.3	56.6							
	07	284	29.5		26.1	192	42.4	15.0		2 25.8	15.4	56.7							
	08	299	29.4		26.1	207	16.4	14.9		2 41.2	15.3	56.7							
	09	314	29.2		26.1	221	50.3	14.9		2 56.5	15.4	56.7							
M O N D A Y	10	329	29.1		26.0	236	24.2	14.9		3 11.9	15.4	56.8							
	11	344	29.0		26.0	250	58.1	14.8		3 27.3	15.4	56.8							
	12	359	28.8	N 23	26.0	265	31.9	14.7	S 3	3 42.7	15.3	56.8							
	13	14	28.7		25.9	280	05.6	14.7		3 58.0	15.4	56.9							
	14	29	28.6		25.9	294	39.3	14.7		4 13.4	15.4	56.9							
	15	44	28.4		25.9	309	13.0	14.5		4 28.8	15.4	57.0							
	16	59	28.3		25.8	323	46.5	14.6		4 44.2	15.4	57.0							
	17	74	28.2		25.8	338	20.1	14.4		4 59.6	15.4	57.0							
	18	89	28.0	N 23	25.8	352	53.5	14.4	S 5	5 15.0	15.4	57.1							
	19	104	27.9		25.7	7	26.9	14.4		5 30.4	15.4	57.1							
	20	119	27.8		25.7	22	00.3	14.2		5 45.8	15.3	57.1							
	21	134	27.6		25.6	36	33.5	14.2		6 01.1	15.4	57.2							
	22	149	27.5		25.6	51	06.7	14.2		6 16.5	15.4	57.2							
	23	164	27.4		25.6	65	39.9	14.0		6 31.9	15.3	57.2							
			S.D.	15.8	d	0.0	S.D.	15.1	15.3	15.5									
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	ARIES			VENUS -3-9			MARS -1-7			JUPITER -1-6			SATURN +0-6			STARS			
G.M.T.	G.H.A.			G.H.A. Dec.			G.H.A. Dec.			G.H.A. Dec.			G.H.A. Dec.			Name	S.H.A.	Dec.	
d h	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"		°	'	"
TUESDAY	24 00	271 58.3	226 50.8	N14 01.4	31 33.1	S 23 44.9	93 41.7	N 2 10.4	237 20.2	N11 22.5	Acamar	315 43.6	S 40 25.3						
	01	287 00.7	241 50.8	02.1	46 36.1	44.9	108 44.0	10.3	252 22.4	22.6	Achernar	335 51.3	S 57 23.1						
	02	302 03.2	256 50.8	02.8	61 39.1	44.9	123 46.3	10.2	267 24.7	22.7	Acrux	173 46.8	S 62 56.1						
	03	317 05.7	271 50.8	03.5	76 42.1	44.9	138 48.5	10.1	282 26.9	22.7	Adhara	255 39.0	S 28 55.7						
	04	332 08.1	286 50.8	04.2	91 45.1	44.8	153 50.8	10.0	297 29.2	22.8	Aldebaran	291 27.8	N 16 27.1						
	05	347 10.6	301 50.8	04.8	106 48.1	44.8	168 53.1	09.9	312 31.4	22.9									
	06	2 13.1	316 50.7	N14 05.5	121 51.1	S 23 44.8	183 55.3	N 2 09.8	327 33.7	N11 22.9	Alioth	166 49.3	N 56 07.8						
	07	17 15.5	331 50.7	06.2	136 54.1	44.8	198 57.6	09.7	342 35.9	23.0	Alkaid	153 24.5	N 49 28.1						
	08	32 18.0	346 50.7	06.9	151 57.1	44.7	213 59.8	09.6	357 38.2	23.1	Al Na'ir	28 24.8	S 47 06.4						
	09	47 20.4	1 50.7	07.5	167 00.1	44.7	229 02.1	09.5	12 40.4	23.1	Alnilam	276 20.4	S 1 13.1						
	10	62 22.9	16 50.7	08.2	182 03.0	44.7	244 04.4	09.4	27 42.7	23.2	Alphard	218 28.9	S 8 31.5						
	11	77 25.4	31 50.7	08.9	197 06.0	44.7	259 06.6	09.3	42 44.9	23.3									
	12	92 27.8	46 50.7	N14 09.6	212 09.0	S 23 44.7	274 08.9	N 2 09.2	57 47.2	N11 23.3	Alphecca	126 38.7	N 26 49.0						
	13	107 30.3	61 50.7	10.2	227 12.0	44.6	289 11.2	09.1	72 49.4	23.4	Alpheratz	358 18.0	N 28 55.2						
	14	122 32.8	76 50.7	10.9	242 15.0	44.6	304 13.4	09.0	87 51.7	23.5	Altair	62 40.3	N 8 47.1						
	15	137 35.2	91 50.7	11.6	257 17.9	44.6	319 15.7	08.9	102 53.9	23.5	Ankaa	353 48.2	S 42 28.0						
	16	152 37.7	106 50.7	12.3	272 20.9	44.6	334 17.9	08.8	117 56.2	23.6	Antares	113 06.7	S 26 22.1						
	17	167 40.2	121 50.7	12.9	287 23.9	44.5	349 20.2	08.7	132 58.4	23.7									
	18	182 42.6	136 50.6	N14 13.6	302 26.9	S 23 44.5	4 22.5	N 2 08.6	148 00.7	N11 23.7	Arcturus	146 25.7	N 19 20.5						
	19	197 45.1	151 50.6	14.3	317 29.8	44.5	19 24.7	08.5	163 02.9	23.8	Atria	108 37.9	S 68 58.7						
	20	212 47.5	166 50.6	15.0	332 32.8	44.5	34 27.0	08.4	178 05.2	23.9	Avior	234 32.4	S 59 24.7						
	21	227 50.0	181 50.6	15.6	347 35.8	44.5	49 29.2	08.3	193 07.4	23.9	Bellatrix	279 07.9	N 6 19.5						
	22	242 52.5	196 50.6	16.3	2 38.7	44.4	64 31.5	08.2	208 09.7	24.0	Betelgeuse	271 37.5	N 7 24.3						
	23	257 54.9	211 50.6	17.0	17 41.7	44.4	79 33.7	08.1	223 11.9	24.0									
WEDNESDAY	25 00	272 57.4	226 50.6	N14 17.7	32 44.7	S 23 44.4	94 36.0	N 2 08.0	238 14.1	N11 24.1	Canopus	264 11.5	S 52 40.6						
	01	287 59.9	241 50.5	18.3	47 47.6	44.4	109 38.3	07.9	253 16.4	24.2	Capella	281 24.0	N 45 58.2						
	02	303 02.3	256 50.5	19.0	62 50.6	44.3	124 40.5	07.8	268 18.6	24.2	Deneb	49 53.8	N 45 10.0						
	03	318 04.8	271 50.5	19.7	77 53.5	44.3	139 42.8	07.7	283 20.9	24.3	Denebola	183 07.4	N 14 44.6						
	04	333 07.3	286 50.5	20.4	92 56.5	44.3	154 45.0	07.7	298 23.1	24.4	Diphda	349 29.1	S 18 09.1						
	05	348 09.7	301 50.5	21.0	107 59.5	44.3	169 47.3	07.6	313 25.4	24.4									
	06	3 12.2	316 50.4	N14 21.7	123 02.4	S 23 44.3	184 49.6	N 2 07.5	328 27.6	N11 24.5	Dubhe	194 32.1	N 61 55.3						
	07	18 14.6	331 50.4	22.4	138 05.4	44.2	199 51.8	07.4	343 29.9	24.6	Elnath	278 54.9	N 28 35.1						
	08	33 17.1	346 50.4	23.0	153 08.3	44.2	214 54.1	07.3	358 32.2	24.6	Eltanin	91 01.0	N 51 29.4						
	09	48 19.6	1 50.4	23.7	168 11.3	44.2	229 56.3	07.2	13 34.4	24.7	Enif	34 19.5	N 9 44.0						
	10	63 22.0	16 50.3	24.4	183 14.2	44.2	244 58.6	07.1	28 36.7	24.8	Fomalhaut	16 00.3	S 29 46.9						
	11	78 24.5	31 50.3	25.1	198 17.2	44.2	260 00.8	07.0	43 38.9	24.8									
	12	93 27.0	46 50.3	N14 25.7	213 20.1	S 23 44.1	275 03.1	N 2 06.9	58 41.2	N11 24.9	Gacrux	172 38.2	S 56 56.8						
	13	108 29.4	61 50.3	26.4	228 23.1	44.1	290 05.3	06.8	73 43.4	25.0	Gienah	176 26.5	S 17 22.5						
	14	123 31.9	76 50.2	27.1	243 26.0	44.1	305 07.6	06.6	88 45.7	25.0	Hadar	149 35.1	S 60 13.9						
	15	138 34.4	91 50.2	27.8	258 28.9	44.1	320 09.9	06.5	103 47.9	25.1	Hamal	328 38.5	N 23 19.1						
	16	153 36.8	106 50.2	28.4	273 31.9	44.0	335 12.1	06.4	118 50.2	25.1	Kaus Aust.	84 27.3	S 34 24.2						
	17	168 39.3	121 50.1	29.1	288 34.8	44.0	350 14.4	06.3	133 52.4	25.2									
	18	183 41.8	136 50.1	N14 29.8	303 37.8	S 23 44.0	5 16.6	N 2 06.2	148 54.7	N11 25.3	Kochab	137 17.2	N 74 17.0						
	19	198 44.2	151 50.1	30.4	318 40.7	44.0	20 18.9	06.1	163 56.9	25.3	Markab	14 11.3	N 15 02.3						
	20	213 46.7	166 50.0	31.1	333 43.6	44.0	35 21.1	06.0	178 59.2	25.4	Menkar	314 50.0	N 3 58.4						
	21	228 49.1	181 50.0	31.8	348 46.6	43.9	50 23.4	05.9	194 01.4	25.5	Menkent	148 46.7	S 36 13.5						
	22	243 51.6	196 50.0	32.5	3 49.5	43.9	65 25.6	05.8	209 03.7	25.5	Miaplacidus	221 47.8	S 69 35.6						
	23	258 54.1	211 49.9	33.1	18 52.4	43.9	80 27.9	05.7	224 05.9	25.6									
THURSDAY	26 00	273 56.5	226 49.9	N14 33.8	33 55.3	S 23 43.9	95 30.1	N 2 05.6	239 08.2	N11 25.7	Mirfak	309 28.5	N 49 45.2						
	01	288 59.0	241 49.9	34.5	48 58.3	43.9	110 32.4	05.5	254 10.4	25.7	Nunki	76 39.0	S 26 20.3						
	02	304 01.5	256 49.8	35.1	64 01.2	43.9	125 34.6	05.4	269 12.7	25.8	Peacock	54 10.7	S 56 50.0						
	03	319 03.9	271 49.8	35.8	79 04.1	43.8	140 36.9	05.3	284 14.9	25.8	Pollux	244 08.6	N 28 06.3						
	04	334 06.4	286 49.8	36.5	94 07.0	43.8	155 39.2	05.2	299 17.2	25.9	Procyon	245 34.7	N 5 18.4						
	05	349 08.9	301 49.7	37.2	109 10.0	43.8	170 41.4	05.1	314 19.4	26.0									
	06	4 11.3	316 49.7	N14 37.8	124 12.9	S 23 43.8	185 43.7	N 2 05.0	329 21.7	N11 26.0	Rasalhague	96 36.9	N 12 34.7						
	07	19 13.8	331 49.6	38.5	139 15.8	43.8	200 45.9	04.9	344 24.0	26.1	Regulus	208 18.9	N 12 07.2						
	08	34 16.3	346 49.6	39.2	154 18.7	43.7	215 48.2	04.8	359 26.2	26.2	Rigel	281 44.3	S 8 14.0						
	09	49 18.7	1 49.6	39.8	169 21.6	43.7	230 50.4	04.7	14 28.5	26.2	Rigel Kent.	140 36.9	S 60 42.8						
	10	64 21.2	16 49.5	40.5	184 24.5	43.7	245 52.7	04.6	29 30.7	26.3	Sabik	102 50.3	S 15 41.5						
	11	79 23.6	31 49.5	41.2	199 27.4	43.7	260 54.9	04.5	44 33.0	26.3									
	12	94 26.1	46 49.4	N14 41.8	214 30.4	S 23 43.7	275 57.2	N 2 04.4	59 35.2	N11 26.4	Schedar	350 18.8	N 56 22.0						
	13	109 28.6	61 49.4	42.5	229 33.3	43.7	290 59.4	04.3	74 37.5	26.5	Shaula	97 06.6	S 37 05.1						
	14	124 31.0	76 49.3	43.2	244 36.2	43.6	306 01.7	04.2	89 39.7	26.5	Sirius	259 03.3	S 16 40.3						
	15	139 33.5	91 49.3	43.8	259 39.1	43.6	321 03.9	04.1	104 42.0	26.6	Spica	159 06.2	S 11 00.3						
	16	154 36.0	106 49.2	44.5	274 42.0	43.6	336 06.2	04.0	119 44.2	26.7	Suhail	223 17.3	S 43 18.6						
	17	169 38.4	121 49.2	45.2	289 44.9	43.6	351 08.4	03.9	134 46.5	26.7									
	18	184 40.9	136 49.2	N14 45.8	304 47.8	S 23 43.6	6 10.7	N 2 03.8	149 48.8	N11 26.8	Vega	81 01.0	N 38 45.1						
	19	199 43.4	151 49.1	46.5	319 50.7	43.5	21 12.9	03.7	164 51.0	26.8	Zuben'ubi	137 42.0	S 15 55.1						
	20	214 45.8	166 49.1	47.2	334 53.6	43.5	36 15.2	03.6	179 53.3	26.9									
	21	229 48.3	181 49.0	47.9	349 56.5	43.5	51 17.4	03.5	194 55.5	27.0									
	22	244 50.8	196 48.9	48.5	4 59.4	43.5	66 19.6	03.4	209 57.8	27.0	Venus	313 53.2	8 53						
	23	259 53.2	211 48.9	49.2	20 02.3	43.5	81 21.9	03.3	225 00.0	27.1	Mars	119 47.3	21 45						
Mer. Pass. 5 47.2																			
v 0.0 d 0.7 v 2.9 d 0.0 v 2.3 d 0.1 v 2.3 d 0.1																			
S.H.A. Mer. Pass. h m																			
Jupiter 181 38.6 17 39																			
Saturn 325 16.7 8 06																			

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise				
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	24	25	26	27
<i>d h</i>		<i>° ' "</i>	<i>° ' "</i>	<i>° ' "</i>	<i>° ' "</i>	<i>° ' "</i>	<i>° ' "</i>	<i>° ' "</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>
TUESDAY	24 00	179 27-2	N 23 25-5	80 12-9	14-0	S 6 47-2	15-4	57-3	N 72	□	□	□	15 33	19 09	■	■
	01	194 27-1	25-5	94 45-9	13-9	7 02-6	15-3	57-3	N 70	□	□	□	15 14	17 54	■	■
	02	209 27-0	25-4	109 18-8	13-9	7 17-9	15-4	57-4	68	□	□	□	14 59	17 17	■	■
	03	224 26-8	25-4	123 51-7	13-7	7 33-3	15-3	57-4	66	□	□	□	14 47	16 51	19 34	■
	04	239 26-7	25-3	138 24-4	13-7	7 48-6	15-3	57-4	64	▤	▤	01 33	14 37	16 32	18 47	■
	05	254 26-6	25-3	152 57-1	13-6	8 03-9	15-3	57-5	62	▤	▤	02 11	14 28	16 16	18 17	20 37
	06	269 26-4	N 23 25-3	167 29-7	13-6	S 8 19-2	15-2	57-5	60	▤	00 51	02 37	14 21	16 02	17 54	19 54
	07	284 26-3	25-2	182 02-3	13-4	8 34-4	15-3	57-6	N 58	▤	01 42	02 57	14 15	15 51	17 36	19 25
	08	299 26-2	25-2	196 34-7	13-4	8 49-7	15-2	57-6	56	▤	02 12	03 14	14 09	15 41	17 20	19 03
	09	314 26-0	25-1	211 07-1	13-3	9 04-9	15-3	57-6	54	00 47	02 34	03 29	14 04	15 33	17 07	18 44
	10	329 25-9	25-1	225 39-4	13-2	9 20-2	15-1	57-7	52	01 34	02 52	03 41	14 00	15 25	16 56	18 29
	11	344 25-8	25-0	240 11-6	13-1	9 35-3	15-2	57-7	50	02 02	03 07	03 52	13 56	15 18	16 46	18 16
	12	359 25-6	N 23 25-0	254 43-7	13-0	S 9 50-5	15-2	57-7	45	02 47	03 37	04 14	13 47	15 04	16 25	17 48
	13	14 25-5	24-9	269 15-7	12-9	10 05-7	15-1	57-8	N 40	03 18	03 59	04 32	13 40	14 52	16 08	17 27
	14	29 25-4	24-9	283 47-6	12-9	10 20-8	15-1	57-8	35	03 41	04 18	04 47	13 34	14 41	15 54	17 09
	15	44 25-2	24-8	298 19-5	12-7	10 35-9	15-0	57-9	30	03 59	04 33	05 00	13 28	14 33	15 41	16 54
	16	59 25-1	24-8	312 51-2	12-7	10 50-9	15-1	57-9	20	04 28	04 58	05 22	13 19	14 17	15 21	16 28
	17	74 25-0	24-7	327 22-9	12-5	11 06-0	15-0	57-9	N 10	04 51	05 18	05 41	13 11	14 04	15 03	16 06
WEDNESDAY	18	89 24-8	N 23 24-7	341 54-4	12-5	S 11 21-0	15-0	58-0	0	05 10	05 36	05 59	13 04	13 52	14 46	15 46
	19	104 24-7	24-6	356 25-9	12-3	11 36-0	14-9	58-0	S 10	05 27	05 53	06 16	12 56	13 40	14 29	15 26
	20	119 24-6	24-5	10 57-2	12-3	11 50-9	14-9	58-1	20	05 43	06 11	06 35	12 48	13 27	14 12	15 04
	21	134 24-4	24-5	25 28-5	12-1	12 05-8	14-9	58-1	30	06 00	06 30	06 56	12 40	13 13	13 52	14 39
	22	149 24-3	24-4	39 59-6	12-1	12 20-7	14-8	58-1	35	06 08	06 40	07 08	12 34	13 04	13 40	14 25
	23	164 24-2	24-4	54 30-7	11-9	12 35-5	14-8	58-2	40	06 18	06 52	07 23	12 29	12 55	13 27	14 08
	24	179 24-0	N 23 24-3	69 01-6	11-9	S 12 50-3	14-7	58-2	45	06 28	07 06	07 39	12 22	12 44	13 11	13 48
	25 00	194 23-9	24-3	83 32-5	11-7	13 05-0	14-7	58-3	S 50	06 40	07 21	08 00	12 14	12 31	12 52	13 23
	01	209 23-8	24-2	98 03-2	11-6	13 19-7	14-7	58-3	52	06 45	07 29	08 10	12 11	12 24	12 43	13 11
	02	224 23-6	24-1	112 33-8	11-5	13 34-4	14-6	58-3	54	06 51	07 37	08 21	12 07	12 18	12 33	12 57
	03	239 23-5	24-1	127 04-3	11-4	13 49-0	14-6	58-4	56	06 57	07 46	08 34	12 02	12 10	12 22	12 41
	04	254 23-4	24-0	141 34-7	11-3	14 03-6	14-5	58-4	58	07 04	07 57	08 48	11 58	12 02	12 09	12 23
	05	269 23-2	N 23 23-9	156 05-0	11-2	S 14 18-1	14-4	58-5	S 60	07 11	08 08	09 06	11 52	11 52	11 54	12 00
	06	284 23-1	23-9	170 35-2	11-0	14 32-5	14-4	58-5	Moonset							
	07	299 23-0	23-8	185 05-2	10-9	14 46-9	14-4	58-5	Lat.	Sun-set	Twilight	24	25	26	27	
	08	314 22-8	23-8	199 35-1	10-9	15 01-3	14-3	58-6	<i>°</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>
	09	329 22-7	23-7	214 05-0	10-6	15 15-6	14-2	58-6	N 72	□	□	□	22 27	20 35	■	■
	10	344 22-6	23-6	228 34-6	10-6	15 29-8	14-2	58-7	N 70	□	□	□	22 49	21 51	■	■
11	359 22-4	N 23 23-6	243 04-2	10-5	S 15 44-0	14-1	58-7	68	□	□	□	23 06	22 30	■	■	
12	14 22-3	23-5	257 33-7	10-3	15 58-1	14-0	58-7	66	□	□	□	23 20	22 57	22 09	■	
13	29 22-2	23-4	272 03-0	10-2	16 12-1	14-0	58-8	64	22 32	▤	▤	23 31	23 18	22 57	■	
14	44 22-0	23-4	286 32-2	10-0	16 26-1	13-9	58-8	62	21 54	▤	▤	23 41	23 35	23 28	23 16	
15	59 21-9	23-3	301 01-2	10-0	16 40-0	13-9	58-9	60	21 28	23 13	▤	23 50	23 50	23 52	24 00	
16	74 21-8	23-2	315 30-2	9-8	16 53-9	13-7	58-9	N 58	21 07	22 23	▤	23 57	24 02	00 02	00 11	
17	89 21-6	N 23 23-1	329 59-0	9-7	S 17 07-6	13-7	58-9	56	20 51	21 53	▤	24 04	00 04	00 13	00 27	
18	104 21-5	23-1	344 27-7	9-5	17 21-3	13-6	59-0	54	20 36	21 31	23 17	00 01	00 10	00 22	00 41	
19	119 21-4	23-0	358 56-2	9-4	17 34-9	13-6	59-0	52	20 24	21 13	22 31	00 03	00 15	00 31	00 53	
20	134 21-2	22-9	13 24-6	9-3	17 48-5	13-4	59-1	50	20 13	20 58	22 03	00 06	00 20	00 38	01 03	
21	149 21-1	22-8	27 52-9	9-2	18 01-9	13-4	59-1	45	19 51	20 28	21 18	00 11	00 31	00 55	01 26	
THURSDAY	22	164 21-0	22-8	42 21-1	9-0	18 15-3	13-3	59-1	N 40	19 33	20 06	20 47	00 16	00 40	01 08	01 44
	23 00	179 20-9	N 23 22-7	56 49-1	8-9	S 18 28-6	13-2	59-2	35	19 18	19 47	20 24	00 20	00 47	01 20	01 59
	01	194 20-7	22-6	71 17-0	8-7	18 41-8	13-1	59-2	30	19 05	19 32	20 06	00 23	00 54	01 30	02 13
	02	209 20-6	22-5	85 44-7	8-6	18 54-9	13-1	59-3	20	18 43	19 07	19 37	00 29	01 06	01 47	02 35
	03	224 20-5	22-5	100 12-3	8-4	19 08-0	12-9	59-3	N 10	18 24	18 47	19 14	00 35	01 16	02 03	02 55
	04	239 20-3	22-4	114 39-7	8-4	19 20-9	12-9	59-3	0	18 06	18 29	18 55	00 40	01 26	02 17	03 14
	05	254 20-2	22-3	129 07-1	8-1	19 33-8	12-7	59-4	S 10	17 49	18 12	18 38	00 45	01 36	02 31	03 32
	06	269 20-1	N 23 22-2	143 34-2	8-1	S 19 46-5	12-6	59-4	20	17 30	17 54	18 22	00 50	01 46	02 47	03 52
	07	284 19-9	22-1	158 01-3	7-9	19 59-1	12-6	59-5	30	17 09	17 35	18 05	00 57	01 58	03 05	04 16
	08	299 19-8	22-1	172 28-2	7-7	20 11-7	12-4	59-5	35	16 57	17 25	17 57	01 00	02 06	03 15	04 29
	09	314 19-7	22-0	186 54-9	7-6	20 24-1	12-4	59-5	40	16 43	17 13	17 47	01 04	02 14	03 27	04 45
	10	329 19-5	21-9	201 21-5	7-5	20 36-5	12-2	59-6	45	16 26	17 00	17 37	01 09	02 23	03 42	05 04
	11	344 19-4	21-8	215 48-0	7-3	20 48-7	12-1	59-6	S 50	16 05	16 44	17 25	01 15	02 34	03 59	05 28
	12	359 19-3	N 23 21-7	230 14-3	7-2	S 21 00-8	12-0	59-6	52	15 55	16 36	17 20	01 17	02 40	04 07	05 40
	13	14 19-2	21-6	244 40-5	7-0	21 12-8	11-9	59-7	54	15 44	16 28	17 14	01 20	02 45	04 17	05 53
	14	29 19-0	21-6	259 06-5	6-9	21 24-7	11-8	59-7	56	15 31	16 19	17 08	01 24	02 52	04 27	06 08
	15	44 18-9	21-5	273 32-4	6-7	21 36-5	11-7	59-7	58	15 17	16 09	17 01	01 27	02 59	04 39	06 26
	16	59 18-8	21-4	287 58-1	6-6	21 48-2	11-5	59-8	S 60	14 59	15 57	16 54	01 31	03 08	04 53	06 48
17	74 18-6	21-3	302 23-7	6-4	21 59-7	11-4	59-8	SUN								
	18	89 18-5	N 23 21-2	316 49-1	6-3	S 22 11-1	11-3	59-9	Day	Eqn. of Time		Mer. Pass.	MOON			
	19	104 18-4	21-1	331 14-4	6-2	22 22-4	11-1	59-9	<i>00^h</i>	<i>12^h</i>	<i>Pass.</i>	Mer. Upper	Pass. Lower	Age	Phase	
	20	119 18-2	21-0	345 39-6	6-0	22 33-5	11-1	59-9	<i>m s</i>	<i>m s</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>d</i>		
	21	134 18-1	20-9	0 04-6	5-8	22 44-6	10-9	60-0	24	02 11	02 17	12 02	19 15	06 52	10	☾
	22	149 18-0	20-8	14 29-4	5-7	22 55-5	10-7	60-0	25	02 24	02 30	12 02	20 04	07 39	11	
	23	164 17-9	20-8	28 54-1	5-6	23 06-2	10-7	60-0	26	02 36	02 43	12 03	21 00	08 31	12	
		S.D. 15-8	<i>d</i> 0-1	S.D. 15-7		16-0	16-2									

		ARIES		VENUS -3.9		MARS -1.6		JUPITER -1.6		SATURN +0.6		STARS															
G.M.T.		G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.												
d	h	°	'	°	°	'	°	'	°	'	°	'		°	'												
27	00	274	55.7	226	48.8	N 14	49.9	35	05.1	S 23	43.5	96	24.1	N	2	03.2	240	02.3	N 11	27.2	Acamar	315	43.6	S	40	25.3	
	01	289	58.1	241	48.8		50.5	50	08.0		43.4	111	26.4			03.1	255	04.5		27.2	Achernar	335	51.3	S	57	23.1	
	02	305	00.6	256	48.7		51.2	65	10.9		43.4	126	28.6			03.0	270	06.8		27.3	Acrux	173	46.9	S	62	56.1	
	03	320	03.1	271	48.7		51.9	80	13.8		43.4	141	30.9		02.9	285	09.1		27.3	Adhara	255	39.0	S	28	55.7		
	04	335	05.5	286	48.6		52.5	95	16.7		43.4	156	33.1		02.8	300	11.3		27.4	Aldebaran	291	27.8	N	16	27.1		
05	350	08.0	301	48.6		53.2	110	19.6		43.4	171	35.4		02.7	315	13.6		27.5									
06		5	10.5	316	48.5	N 14	53.9	125	22.5	S 23	43.4	186	37.6	N	2	02.6	330	15.8	N 11	27.5	Alioth	166	49.3	N	56	07.8	
07		20	12.9	331	48.4		54.5	140	25.3		43.4	201	39.9			02.4	345	18.1		27.6	Alkaid	153	24.6	N	49	28.1	
08		35	15.4	346	48.4		55.2	155	28.2		43.3	216	42.1			02.3	0	20.3		27.7	Al Na'ir	28	24.8	S	47	06.4	
F R I	09	50	17.9	1	48.3		55.8	170	31.1		43.3	231	44.4		02.2	15	22.6		27.7	Alnilam	276	20.4	S	1	13.0		
	10	65	20.3	16	48.3		56.5	185	34.0		43.3	246	46.6		02.1	30	24.8		27.8	Alphard	218	28.9	S	8	31.5		
D A Y	11	80	22.8	31	48.2		57.2	200	36.9		43.3	261	48.8		02.0	45	27.1		27.8								
	12		95	25.3	46	48.1	N 14	57.8	215	39.7	S 23	43.3	276	51.1	N	2	01.9	60	29.4	N 11	27.9	Alphecca	126	38.8	N	26	49.0
	13		110	27.7	61	48.1		58.5	230	42.6		43.3	291	53.3		01.8	75	31.6		28.0	Alpheratz	358	17.9	N	28	55.2	
	14		125	30.2	76	48.0		59.2	245	45.5		43.2	306	55.6		01.7	90	33.9		28.0	Altair	62	40.3	N	8	47.1	
	15		140	32.6	91	48.0	14	59.8	260	48.3		43.2	321	57.8		01.6	105	36.1		28.1	Ankaa	353	48.2	S	42	28.0	
16		155	35.1	106	47.9	15	00.5	275	51.2		43.2	337	00.1		01.5	120	38.4		28.2	Antares	113	06.7	S	26	22.1		
17		170	37.6	121	47.8		01.2	290	54.1		43.2	352	02.3		01.4	135	40.6		28.2								
18		185	40.0	136	47.8	N 15	01.8	305	56.9	S 23	43.2	7	04.6	N	2	01.3	150	42.9	N 11	28.3	Arcturus	146	25.7	N	19	20.5	
19		200	42.5	151	47.7		02.5	320	59.8		43.2	22	06.8		01.2	165	45.2		28.3	Atria	108	37.9	S	68	58.7		
20		215	45.0	166	47.6		03.2	336	02.7		43.2	37	09.0		01.1	180	47.4		28.4	Avior	234	32.4	S	59	24.7		
21		230	47.4	181	47.5		03.8	351	05.5		43.2	52	11.3		01.0	195	49.7		28.5	Bellatrix	279	07.9	N	6	19.5		
22		245	49.9	196	47.5		04.5	6	08.4		43.1	67	13.5		00.9	210	51.9		28.5	Betelgeuse	271	37.5	N	7	24.3		
23		260	52.4	211	47.4		05.1	21	11.2		43.1	82	15.8		00.8	225	54.2		28.6								
28	00	275	54.8	226	47.3	N 15	05.8	36	14.1	S 23	43.1	97	18.0	N	2	00.7	240	56.4	N 11	28.6	Canopus	264	11.5	S	52	40.5	
	01	290	57.3	241	47.3		06.5	51	16.9		43.1	112	20.2		00.6	255	58.7		28.7	Capella	281	23.9	N	45	58.2		
	02	305	59.8	256	47.2		07.1	66	19.8		43.1	127	22.5		00.4	271	01.0		28.8	Deneb	49	53.8	N	45	10.0		
	03	321	02.2	271	47.1		07.8	81	22.6		43.1	142	24.7		00.3	286	03.2		28.8	Denebola	183	07.4	N	14	44.6		
	04	336	04.7	286	47.0		08.5	96	25.5		43.1	157	27.0		00.2	301	05.5		28.9	Diphda	349	29.1	S	18	09.1		
05	351	07.1	301	47.0		09.1	111	28.3		43.1	172	29.2		00.1	316	07.7		29.0									
06		6	09.6	316	46.9	N 15	09.8	126	31.2	S 23	43.0	187	31.5	N	2	00.0	331	10.0	N 11	29.0	Dubhe	194	32.1	N	61	55.3	
07		21	12.1	331	46.8		10.4	141	34.0		43.0	202	33.7		1 59.9	346	12.3		29.1	Elmath	278	54.9	N	28	35.1		
08		36	14.5	346	46.7		11.1	156	36.9		43.0	217	35.9		1 59.8	1	14.5		29.1	Eltanin	91	01.0	N	51	29.4		
09		51	17.0	1	46.7		11.8	171	39.7		43.0	232	38.2		1 59.7	16	16.8		29.2	Enif	34	19.5	N	9	44.0		
10		66	19.5	16	46.6		12.4	186	42.6		43.0	247	40.4		1 59.6	31	19.0		29.3	Fomalhaut	16	00.2	S	29	46.9		
11		81	21.9	31	46.5		13.1	201	45.4		43.0	262	42.7		1 59.5	46	21.3		29.3								
12		96	24.4	46	46.4	N 15	13.7	216	48.2	S 23	43.0	277	44.9	N	1	59.4	61	23.5	N 11	29.4	Gacrux	172	38.2	S	56	56.8	
13		111	26.9	61	46.3		14.4	231	51.1		43.0	292	47.1		1 59.3	76	25.8		29.4	Gienah	176	26.5	S	17	22.5		
14		126	29.3	76	46.3		15.1	246	53.9		42.9	307	49.4		1 59.2	91	28.1		29.5	Hadar	149	35.1	S	60	13.9		
15		141	31.8	91	46.2		15.7	261	56.7		42.9	322	51.6		1 59.1	106	30.3		29.6	Hamal	328	38.4	N	23	19.1		
16		156	34.3	106	46.1		16.4	276	59.6		42.9	337	53.8		1 58.9	121	32.6		29.6	Kaus Aust.	84	27.3	S	34	24.2		
17		171	36.7	121	46.0		17.0	292	02.4		42.9	352	56.1		1 58.8	136	34.9		29.7								
18		186	39.2	136	45.9	N 15	17.7	307	05.2	S 23	42.9	7	58.3	N	1	58.7	151	37.1	N 11	29.7	Kochab	137	17.3	N	74	17.0	
19		201	41.6	151	45.8		18.3	322	08.0		42.9	23	00.6		1 58.6	166	39.4		29.8	Markab	14	11.3	N	15	02.4		
20		216	44.1	166	45.7		19.0	337	10.9		42.9	38	02.8		1 58.5	181	41.6		29.9	Menkar	314	50.0	N	3	58.4		
21		231	46.6	181	45.7		19.7	352	13.7		42.9	53	05.0		1 58.4	196	43.9		29.9	Menkent	148	46.7	S	36	13.5		
22		246	49.0	196	45.6		20.3	7	16.5		42.9	68	07.3		1 58.3	211	46.2		30.0	Miaplacidus	221	47.9	S	69	35.6		
23		261	51.5	211	45.5		21.0	22	19.3		42.9	83	09.5		1 58.2	226	48.4		30.0								
29	00	276	54.0	226	45.4	N 15	21.6	37	22.1	S 23	42.8	98	11.7	N	1	58.1	241	50.7	N 11	30.1	Mirfak	309	28.4	N	49	45.2	
	01	291	56.4	241	45.3		22.3	52	25.0		42.8	113	14.0		1 58.0	256	52.9		30.2	Nunki	76	39.0	S	26	20.3		
	02	306	58.9	256	45.2		22.9	67	27.8		42.8	128	16.2		1 57.9	271	55.2		30.2	Peacock	54	10.6	S	56	50.0		
	03	322	01.4	271	45.1		23.6	82	30.6		42.8	143	18.5		1 57.8	286	57.5		30.3	Pollux	244	08.6	N	28	06.3		
	04	337	03.8	286	45.0		24.3	97	33.4		42.8	158	20.7		1 57.6	301	59.7		30.3	Procyon	245	34.7	N	5	18.4		
05	352	06.3	301	44.9		24.9	112	36.2		42.8	173	22.9		1 57.5	317	02.0		30.4									
06		7	08.8	316	44.8	N 15	25.6	127	39.0	S 23	42.8	188	25.2	N	1	57.4	332	04.2	N 11	30.5	Rasalhague	96	36.9	N	12	34.7	
07		22	11.2	331	44.7		26.2	142	41.8		42.8	203	27.4		1 57.3	347	06.5		30.5								

G.M.T.	SUN				MOON				Lat.	Twilight		Sun-rise	Moonrise				
	G.H.A.		Dec.	v	Dec.		d	H.P.		Naut.	Civil		27	28	29	30	
	d	h			°	'											°
27 00	179	17-7	N 23	20-7	43	18-7	5-4	S 23	16-9	10-4	60-1						
01	194	17-6		20-6	57	43-1	5-3	23	27-3	10-4	60-1						
02	209	17-5		20-5	72	07-4	5-1	23	37-7	10-2	60-1						
03	224	17-3		20-4	86	31-5	5-0	23	47-9	10-0	60-2						
04	239	17-2		20-3	100	55-5	4-8	23	57-9	9-9	60-2						
05	254	17-1		20-2	115	19-3	4-7	24	07-8	9-8	60-2						
06	269	16-9	N 23	20-1	129	43-0	4-6	S 24	17-6	9-6	60-3						
07	284	16-8		20-0	144	06-6	4-4	24	27-2	9-4	60-3						
08	299	16-7		19-9	158	30-0	4-2	24	36-6	9-3	60-3						
09	314	16-6		19-8	172	53-2	4-1	24	45-9	9-1	60-4						
10	329	16-4		19-7	187	16-3	4-0	24	55-0	9-0	60-4						
11	344	16-3		19-6	201	39-3	3-9	25	04-0	8-7	60-4						
12	359	16-2	N 23	19-5	216	02-2	3-7	S 25	12-7	8-7	60-4						
13	14	16-0		19-4	230	24-9	3-5	25	21-4	8-4	60-5						
14	29	15-9		19-3	244	47-4	3-5	25	29-8	8-3	60-5						
15	44	15-8		19-2	259	09-9	3-3	25	38-1	8-1	60-5						
16	59	15-7		19-1	273	32-2	3-2	25	46-2	7-9	60-6						
17	74	15-5		19-0	287	54-4	3-0	25	54-1	7-8	60-6						
18	89	15-4	N 23	18-9	302	16-4	2-9	S 26	01-9	7-5	60-6						
19	104	15-3		18-8	316	38-3	2-8	26	09-4	7-4	60-7						
20	119	15-1		18-7	331	00-1	2-7	26	16-8	7-2	60-7						
21	134	15-0		18-6	345	21-8	2-5	26	24-0	7-1	60-7						
22	149	14-9		18-4	359	43-3	2-4	26	31-1	6-8	60-7						
23	164	14-8		18-3	14	04-7	2-3	26	37-9	6-6	60-8						
28 00	179	14-6	N 23	18-2	28	26-0	2-2	S 26	44-5	6-5	60-8						
01	194	14-5		18-1	42	47-2	2-1	26	51-0	6-2	60-8						
02	209	14-4		18-0	57	08-3	2-0	26	57-2	6-0	60-8						
03	224	14-2		17-9	71	29-3	1-8	27	03-2	5-9	60-9						
04	239	14-1		17-8	85	50-1	1-8	27	09-1	5-6	60-9						
05	254	14-0		17-7	100	10-9	1-6	27	14-7	5-5	60-9						
06	269	13-9	N 23	17-6	114	31-5	1-5	S 27	20-2	5-2	60-9						
07	284	13-7		17-4	128	52-0	1-5	27	25-4	5-1	61-0						
08	299	13-6		17-3	143	12-5	1-3	27	30-5	4-8	61-0						
09	314	13-5		17-2	157	32-8	1-3	27	35-3	4-6	61-0						
10	329	13-4		17-1	171	53-1	1-2	27	39-9	4-4	61-0						
11	344	13-2		17-0	186	13-3	1-0	27	44-3	4-2	61-0						
12	359	13-1	N 23	16-9	200	33-3	1-0	S 27	48-5	4-0	61-1						
13	14	13-0		16-7	214	53-3	1-0	27	52-5	3-8	61-1						
14	29	12-9		16-6	229	13-3	0-8	27	56-3	3-5	61-1						
15	44	12-7		16-5	243	33-1	0-8	27	59-8	3-4	61-1						
16	59	12-6		16-4	257	52-9	0-7	28	03-2	3-1	61-1						
17	74	12-5		16-2	272	12-6	0-6	28	06-3	2-9	61-2						
18	89	12-3	N 23	16-1	286	32-2	0-6	S 28	09-2	2-7	61-2						
19	104	12-2		16-0	300	51-8	0-5	28	11-9	2-4	61-2						
20	119	12-1		15-9	315	11-3	0-5	28	14-3	2-2	61-2						
21	134	12-0		15-8	329	30-8	0-4	28	16-5	2-1	61-2						
22	149	11-8		15-6	343	50-2	0-3	28	18-6	1-7	61-2						
23	164	11-7		15-5	358	09-5	0-4	28	20-3	1-6	61-3						
29 00	179	11-6	N 23	15-4	12	28-9	0-2	S 28	21-9	1-3	61-3						
01	194	11-5		15-2	26	48-1	0-3	28	23-2	1-1	61-3						
02	209	11-3		15-1	41	07-4	0-2	28	24-3	0-9	61-3						
03	224	11-2		15-0	55	26-6	0-2	28	25-2	0-6	61-3						
04	239	11-1		14-9	69	45-8	0-1	28	25-8	0-5	61-3						
05	254	11-0		14-7	84	04-9	0-2	28	26-3	0-1	61-3						
06	269	10-8	N 23	14-6	98	24-1	0-1	S 28	26-4	0-0	61-3						
07	284	10-7		14-5	112	43-2	0-1	28	26-4	0-3	61-3						
08	299	10-6		14-3	127	02-3	0-1	28	26-1	0-5	61-4						
09	314	10-5		14-2	141	21-4	0-1	28	25-6	0-7	61-4						
10	329	10-3		14-1	155	40-5	0-1	28	24-9	0-9	61-4						
11	344	10-2		13-9	169	59-6	0-1	28	24-0	1-2	61-4						
12	359	10-1	N 23	13-8	184	18-7	0-1	S 28	22-8	1-4	61-4						
13	14	10-0		13-7	198	37-8	0-1	28	21-4	1-7	61-4						
14	29	09-8		13-5	212	56-9	0-1	28	19-7	1-9	61-4						
15	44	09-7		13-4	227	16-0	0-2	28	17-8	2-1	61-4						
16	59	09-6		13-2	241	35-2	0-2	28	15-7	2-3	61-4						
17	74	09-5		13-1	255	54-4	0-2	28	13-4	2-6	61-4						
18	89	09-3	N 23	13-0	270	13-6	0-2	S 28	10-8	2-8	61-4						
19	104	09-2		12-8	284	32-8	0-3	28	08-0	3-0	61-4						
20	119	09-1		12-7	298	52-1	0-3	28	05-0	3-2	61-4						
21	134	09-0		12-5	313	11-4	0-3	28	01-8	3-5	61-4						
22	149	08-9		12-4	327	30-7	0-4	27	58-3	3-7	61-4						
23	164	08-7		12-3	341	50-1	0-5	27	54-6	3-9	61-4						
									SUN		MOON						
									Day	Eqn. of Time 00h 12h	Mer. Pass.	Mer. Pass.		Age		Phase	
												Upper	Lower				
												h m	h m	d			
									27	02 49	02 55	12 03	22 01	09 30	13		
									28	03 01	03 07	12 03	23 08	10 34	14		
									29	03 13	03 19	12 03	24 16	11 42	15		

	ARIES	VENUS -3-8		MARS -1-6		JUPITER -1-5		SATURN +0-6		STARS			
G.M.T.	G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.	
d h	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "		° ' "	° ' "	
MONDAY	00	277 53-1	226 43-0 N 15	37-4	38 29-3 S 23	42-7	99 05-4 N 1	55-4	242 45-0 N 11	31-5	Acamar	315 43-6 S	40 25-3
	01	292 55-6	241 42-9	38-0	53 32-1	42-6	114 07-6	55-3	257 47-2	31-6	Achernar	335 51-3 S	57 23-1
	02	307 58-0	256 42-8	38-7	68 34-9	42-6	129 09-8	55-2	272 49-5	31-7	Acru	173 46-9 S	62 56-1
	03	323 00-5	271 42-7	39-3	83 37-7	42-6	144 12-0	55-1	287 51-8	31-7	Adhara	255 39-0 S	28 55-6
	04	338 03-0	286 42-6	40-0	98 40-4	42-6	159 14-3	55-0	302 54-0	31-8	Aldebaran	291 27-8 N	16 27-1
	05	353 05-4	301 42-5	40-6	113 43-2	42-6	174 16-5	54-9	317 56-3	31-8			
	06	8 07-9	316 42-4 N 15	41-3	128 46-0 S 23	42-6	189 18-7 N 1	54-8	332 58-6 N 11	31-9	Alioth	166 49-4 N	56 07-8
	07	23 10-4	331 42-3	41-9	143 48-8	42-6	204 21-0	54-7	348 00-8	31-9	Alkaid	153 24-6 N	49 28-1
	08	38 12-8	346 42-1	42-6	158 51-5	42-6	219 23-2	54-6	3 03-1	32-0	Al Na'ir	28 24-8 S	47 06-4
	09	53 15-3	1 42-0	43-2	173 54-3	42-6	234 25-4	54-4	18 05-4	32-1	Alnilam	276 20-4 S	1 13-0
	10	68 17-7	16 41-9	43-9	188 57-1	42-6	249 27-7	54-3	33 07-6	32-1	Alphard	218 28-9 S	8 31-5
	11	83 20-2	31 41-8	44-5	203 59-8	42-6	264 29-9	54-2	48 09-9	32-2			
	12	98 22-7	46 41-7 N 15	45-1	219 02-6 S 23	42-6	279 32-1 N 1	54-1	63 12-2 N 11	32-2	Alphecca	126 38-8 N	26 49-0
	13	113 25-1	61 41-6	45-8	234 05-3	42-6	294 34-3	54-0	78 14-4	32-3	Alpheratz	358 17-9 N	28 55-2
	14	128 27-6	76 41-4	46-4	249 08-1	42-6	309 36-6	53-9	93 16-7	32-4	Altair	62 40-3 N	8 47-1
	15	143 30-1	91 41-3	47-1	264 10-9	42-6	324 38-8	53-8	108 18-9	32-4	Ankaa	353 48-1 S	42 28-0
	16	158 32-5	106 41-2	47-7	279 13-6	42-6	339 41-0	53-7	123 21-2	32-5	Antares	113 06-7 S	26 22-1
	17	173 35-0	121 41-1	48-4	294 16-4	42-6	354 43-3	53-6	138 23-5	32-5			
	18	188 37-5	136 41-0 N 15	49-0	309 19-1 S 23	42-6	9 45-5 N 1	53-4	153 25-7 N 11	32-6	Arcturus	146 25-8 N	19 20-5
	19	203 39-9	151 40-8	49-7	324 21-9	42-6	24 47-7	53-3	168 28-0	32-6	Atria	108 37-9 S	68 58-7
	20	218 42-4	166 40-7	50-3	339 24-6	42-6	39 49-9	53-2	183 30-3	32-7	Avior	234 32-4 S	59 24-7
	21	233 44-9	181 40-6	51-0	354 27-4	42-6	54 52-2	53-1	198 32-5	32-8	Bellatrix	279 07-9 N	6 19-5
	22	248 47-3	196 40-5	51-6	9 30-1	42-6	69 54-4	53-0	213 34-8	32-8	Betelgeuse	271 37-5 N	7 24-3
23	263 49-8	211 40-4	52-3	24 32-9	42-6	84 56-6	52-9	228 37-1	32-9				
TUESDAY	00	278 52-2	226 40-2 N 15	52-9	39 35-6 S 23	42-6	99 58-8 N 1	52-8	243 39-3 N 11	32-9	Canopus	264 11-5 S	52 40-5
	01	293 54-7	241 40-1	53-6	54 38-4	42-6	115 01-1	52-7	258 41-6	33-0	Capella	281 23-9 N	45 58-2
	02	308 57-2	256 40-0	54-2	69 41-1	42-6	130 03-3	52-5	273 43-9	33-0	Deneb	49 53-8 N	45 10-0
	03	323 59-6	271 39-8	54-8	84 43-8	42-6	145 05-5	52-4	288 46-1	33-1	Denebola	183 07-4 N	14 44-7
	04	339 02-1	286 39-7	55-5	99 46-6	42-6	160 07-7	52-3	303 48-4	33-2	Diphda	349 29-0 S	18 09-1
	05	354 04-6	301 39-6	56-1	114 49-3	42-6	175 10-0	52-2	318 50-7	33-2			
	06	9 07-0	316 39-5 N 15	56-8	129 52-0 S 23	42-6	190 12-2 N 1	52-1	333 52-9 N 11	33-3	Dubhe	194 32-1 N	61 55-3
	07	24 09-5	331 39-3	57-4	144 54-8	42-6	205 14-4	52-0	348 55-2	33-3	Elnath	278 54-9 N	28 35-1
	08	39 12-0	346 39-2	58-1	159 57-5	42-6	220 16-6	51-9	3 57-5	33-4	Eltanin	91 01-0 N	51 29-4
	09	54 14-4	1 39-1	58-7	175 00-2	42-6	235 18-9	51-8	18 59-7	33-5	Enif	34 19-5 N	9 44-0
	10	69 16-9	16 38-9	59-3	190 03-0	42-6	250 21-1	51-6	34 02-0	33-5	Fomalhaut	16 00-2 S	29 46-9
	11	84 19-4	31 38-8	60-0	205 05-7	42-6	265 23-3	51-5	49 04-3	33-6			
	12	99 21-8	46 38-7 N 16	00-6	220 08-4 S 23	42-6	280 25-5 N 1	51-4	64 06-6 N 11	33-6	Gacrux	172 38-3 S	56 56-9
	13	114 24-3	61 38-5	01-3	235 11-2	42-6	295 27-8	51-3	79 08-8	33-7	Gienah	176 26-5 S	17 22-5
	14	129 26-7	76 38-4	01-9	250 13-9	42-6	310 30-0	51-2	94 11-1	33-7	Hadar	149 35-1 S	60 13-9
	15	144 29-2	91 38-3	02-5	265 16-6	42-6	325 32-2	51-1	109 13-4	33-8	Hamal	328 38-4 N	23 19-1
	16	159 31-7	106 38-1	03-2	280 19-3	42-6	340 34-4	51-0	124 15-6	33-9	Kaus Aust.	84 27-3 S	34 24-2
	17	174 34-1	121 38-0	03-8	295 22-0	42-6	355 36-6	50-8	139 17-9	33-9			
	18	189 36-6	136 37-9 N 16	04-5	310 24-7 S 23	42-6	10 38-9 N 1	50-7	154 20-2 N 11	34-0	Kochab	137 17-3 N	74 17-0
	19	204 39-1	151 37-7	05-1	325 27-5	42-6	25 41-1	50-6	169 22-4	34-0	Makab	14 11-3 N	15 02-4
	20	219 41-5	166 37-6	05-7	340 30-2	42-6	40 43-3	50-5	184 24-7	34-1	Menkar	314 50-0 N	3 58-4
	21	234 44-0	181 37-4	06-4	355 32-9	42-6	55 45-5	50-4	199 27-0	34-1	Menkent	148 46-7 S	36 13-5
	22	249 46-5	196 37-3	07-0	10 35-6	42-6	70 47-8	50-3	214 29-2	34-2	Miaplacidus	221 47-9 S	69 35-6
23	264 48-9	211 37-2	07-7	25 38-3	42-6	85 50-0	50-2	229 31-5	34-3				
WEDNESDAY	00	279 51-4	226 37-0 N 16	08-3	40 41-0 S 23	42-6	100 52-2 N 1	50-0	244 33-8 N 11	34-3	Mirfak	309 28-4 N	49 45-2
	01	294 53-9	241 36-9	08-9	55 43-7	42-6	115 54-4	49-9	259 36-0	34-4	Nunki	76 39-0 S	26 20-3
	02	309 56-3	256 36-7	09-6	70 46-4	42-6	130 56-6	49-8	274 38-3	34-4	Peacock	54 10-6 S	56 50-0
	03	324 58-8	271 36-6	10-2	85 49-1	42-6	145 58-9	49-7	289 40-6	34-5	Pollux	244 08-6 N	28 06-3
	04	340 01-2	286 36-4	10-8	100 51-8	42-6	161 01-1	49-6	304 42-9	34-5	Procyon	245 34-7 N	5 18-4
	05	355 03-7	301 36-3	11-5	115 54-5	42-6	176 03-3	49-5	319 45-1	34-6			
	06	10 06-2	316 36-1 N 16	12-1	130 57-2 S 23	42-6	191 05-5 N 1	49-3	334 47-4 N 11	34-7	Rasalhague	96 36-9 N	12 34-8
	07	25 08-6	331 36-0	12-8	145 59-9	42-6	206 07-7	49-2	349 49-7	34-7	Regulus	208 18-9 N	12 07-2
	08	40 11-1	346 35-8	13-4	161 02-6	42-6	221 10-0	49-1	4 51-9	34-8	Rigel	281 44-2 S	8 14-0
	09	55 13-6	1 35-7	14-0	176 05-3	42-6	236 12-2	49-0	19 54-2	34-8	Rigel Kent.	140 37-0 S	60 42-8
	10	70 16-0	16 35-5	14-7	191 08-0	42-6	251 14-4	48-9	34 56-5	34-9	Sabik	102 50-3 S	15 41-5
	11	85 18-5	31 35-4	15-3	206 10-7	42-6	266 16-6	48-8	49 58-8	34-9			
	12	100 21-0	46 35-2 N 16	15-9	221 13-4 S 23	42-6	281 18-8 N 1	48-6	65 01-0 N 11	35-0	Schedar	350 18-7 N	56 22-0
	13	115 23-4	61 35-1	16-6	236 16-1	42-6	296 21-0	48-5	80 03-3	35-0	Shaula	97 06-6 S	37 05-2
	14	130 25-9	76 34-9	17-2	251 18-7	42-6	311 23-3	48-4	95 05-6	35-1	Sirius	259 03-3 S	16 40-2
	15	145 28-4	91 34-8	17-8	266 21-4	42-6	326 25-5	48-3	110 07-8	35-2	Spica	159 06-2 S	11 00-3
	16	160 30-8	106 34-6	18-5	281 24-1	42-6	341 27-7	48-2	125 10-1	35-2	Suhail	223 17-4 S	43 18-6
	17	175 33-3	121 34-5	19-1	296 26-8	42-6	356 29-9	48-1	140 12-4	35-3			
	18	190 35-7	136 34-3 N 16	19-7	311 29-5 S 23	42-6	11 32-1 N 1	47-9	155 14-7 N 11	35-3	Vega	81 01-0 N	38 45-2
	19	205 38-2	151 34-2	20-4	326 32-1	42-6	26 34-4	47-8	170 16-9	35-4	Zuben'ubi	137 42-0 S	15 55-1
	20	220 40-7	166 34-0	21-0	341 34-8	42-6	41 36-6	47-7	185 19-2	35-4			
	21	235 43-1	181 33-9	21-6	356 37-5	42-6	56 38-8	47-6	200 21-5	35-5		S.H.A.	Mer. Pass.
	22	250 45-6	196 33-7	22-3	11 40-2	42-6	71 41-0	47-5	215 23-8	35-5	Venus	307 48-0 S	8 53
23	265 48-1	211 33-5	22-9	26 42-8	42-6	86 43-2	47-4	230 26-0	35-6	Mars	120 43-4 S	21 18	
										Jupiter	181 06-6 S	17 18	
										Saturn	324 47-1 S	7 44	
Mer. Pass.	h m	v -0-1 d 0-6		v 2-7 d 0-0		v 2-2 d 0-1		v 2-3 d 0-1					
	5 23-6												

G.M.T.		ARIES			VENUS -3-8			MARS -1-5			JUPITER -1-5			SATURN +0-6			STARS		
		G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	Name	S.H.A.	Dec.
d	h	°	'	°	°	'	°	°	'	°	°	'	°	°	'	°		°	'
3	00	280	50-5	226 33-4 N 16 23-5	41 45-5 S 23 42-7	101 45-4 N 1 47-2	245 28-3 N 11 35-7	Acamar	315 43-6 S 40 25-3										
	01	295	53-0	241 33-2 24-2	56 48-2 42-7	116 47-6 47-1	260 30-6 35-7	Achernar	335 51-2 S 57 23-1										
	02	310	55-5	256 33-1 24-8	71 50-8 42-7	131 49-9 47-0	275 32-8 35-8	Acrux	173 46-9 S 62 56-1										
	03	325	57-9	271 32-9 25-4	86 53-5 42-7	146 52-1 46-9	290 35-1 35-8	Adhara	255 39-0 S 28 55-6										
	04	341	00-4	286 32-7 26-1	101 56-2 42-7	161 54-3 46-8	305 37-4 35-9	Aldebaran	291 27-8 N 16 27-1										
05	356	02-9	301 32-6 26-7	116 58-8 42-7	176 56-5 46-7	320 39-7 35-9													
T H U R S D A Y	06	11	05-3	316 32-4 N 16 27-3	132 01-5 S 23 42-7	191 58-7 N 1 46-5	335 41-9 N 11 36-0	Alioth	166 49-4 N 56 07-8										
	07	26	07-8	331 32-2 27-9	147 04-2 42-7	207 00-9 46-4	350 44-2 36-0	Alkaid	153 24-6 N 49 28-1										
	08	41	10-2	346 32-1 28-6	162 06-8 42-7	222 03-1 46-3	5 46-5 36-1	Al Na'ir	28 24-7 S 47 06-4										
	09	56	12-7	1 31-9 29-2	177 09-5 42-7	237 05-4 46-2	20 48-8 36-2	Alnilam	276 20-3 S 1 13-0										
	10	71	15-2	16 31-7 29-8	192 12-1 42-7	252 07-6 46-1	35 51-0 36-2	Alphard	218 28-9 S 8 31-5										
11	86	17-6	31 31-6 30-4	207 14-8 42-7	267 09-8 46-0	50 53-3 36-3													
12	101	20-1	46 31-4 N 16 31-1	222 17-4 S 23 42-7	282 12-0 N 1 45-8	65 55-6 N 11 36-3	Alphecca	126 38-8 N 26 49-0											
13	116	22-6	61 31-2 31-7	237 20-1 42-7	297 14-2 45-7	80 57-9 36-4	Alpheratz	358 17-9 N 28 55-2											
14	131	25-0	76 31-1 32-3	252 22-7 42-8	312 16-4 45-6	96 00-1 36-4	Altair	62 40-2 N 8 47-1											
15	146	27-5	91 30-9 32-9	267 25-4 42-8	327 18-6 45-5	111 02-4 36-5	Ankaa	353 48-1 S 42 28-0											
16	161	30-0	106 30-7 33-6	282 28-0 42-8	342 20-8 45-4	126 04-7 36-5	Antares	113 06-7 S 26 22-1											
17	176	32-4	121 30-5 34-2	297 30-7 42-8	357 23-1 45-2	141 07-0 36-6													
18	191	34-9	136 30-4 N 16 34-8	312 33-3 S 23 42-8	12 25-3 N 1 45-1	156 09-2 N 11 36-6	Arcturus	146 25-7 N 19 20-5											
19	206	37-4	151 30-2 35-4	327 35-9 42-8	27 27-5 45-0	171 11-5 36-7	Atria	108 37-9 S 68 58-7											
20	221	39-8	166 30-0 36-1	342 38-6 42-8	42 29-7 44-9	186 13-8 36-8	Avior	234 32-4 S 59 24-6											
21	236	42-3	181 29-8 36-7	357 41-2 42-8	57 31-9 44-8	201 16-1 36-8	Bellatrix	279 07-9 N 6 19-6											
22	251	44-7	196 29-7 37-3	12 43-8 42-8	72 34-1 44-6	216 18-3 36-9	Betelgeuse	271 37-5 N 7 24-3											
23	266	47-2	211 29-5 37-9	27 46-5 42-8	87 36-3 44-5	231 20-6 36-9													
4	00	281	49-7	226 29-3 N 16 38-6	42 49-1 S 23 42-8	102 38-5 N 1 44-4	246 22-9 N 11 37-0	Canopus	264 11-4 S 52 40-5										
	01	296	52-1	241 29-1 39-2	57 51-7 42-9	117 40-7 44-3	261 25-2 37-0	Capella	281 23-9 N 45 58-2										
	02	311	54-6	256 29-0 39-8	72 54-4 42-9	132 43-0 44-2	276 27-4 37-1	Deneb	49 53-8 N 45 10-0										
	03	326	57-1	271 28-8 40-4	87 57-0 42-9	147 45-2 44-1	291 29-7 37-1	Denebola	183 07-4 N 14 44-7										
	04	341	59-5	286 28-6 41-0	102 59-6 42-9	162 47-4 43-9	306 32-0 37-2	Diphda	349 29-0 S 18 09-0										
05	357	02-0	301 28-4 41-7	118 02-2 42-9	177 49-6 43-8	321 34-3 37-2													
06	12	04-5	316 28-2 N 16 42-3	133 04-9 S 23 42-9	192 51-8 N 1 43-7	336 36-5 N 11 37-3	Dubhe	194 32-1 N 61 55-3											
07	27	06-9	331 28-1 42-9	148 07-5 42-9	207 54-0 43-6	351 38-8 37-4	Elnath	278 54-9 N 28 35-1											
08	42	09-4	346 27-9 43-5	163 10-1 42-9	222 56-2 43-5	6 41-1 37-4	Eltanin	91 01-0 N 51 29-4											
09	57	11-8	1 27-7 44-1	178 12-7 42-9	237 58-4 43-3	21 43-4 37-5	Enif	34 19-4 N 9 44-0											
10	72	14-3	16 27-5 44-8	193 15-3 43-0	253 00-6 43-2	36 45-6 37-5	Fomalhaut	16 00-2 S 29 46-9											
11	87	16-8	31 27-3 45-4	208 18-0 43-0	268 02-8 43-1	51 47-9 37-6													
12	102	19-2	46 27-1 N 16 46-0	223 20-6 S 23 43-0	283 05-0 N 1 43-0	66 50-2 N 11 37-6	Gacrux	172 38-3 S 56 56-8											
13	117	21-7	61 26-9 46-6	238 23-2 43-0	298 07-2 42-9	81 52-5 37-7	Gienah	176 26-5 S 17 22-4											
14	132	24-2	76 26-8 47-2	253 25-8 43-0	313 09-5 42-7	96 54-8 37-7	Hadar	149 35-1 S 60 13-9											
15	147	26-6	91 26-6 47-9	268 28-4 43-0	328 11-7 42-6	111 57-0 37-8	Hamal	328 38-4 N 23 19-1											
16	162	29-1	106 26-4 48-5	283 31-0 43-0	343 13-9 42-5	126 59-3 37-8	Kaus Aust.	84 27-3 S 34 24-2											
17	177	31-6	121 26-2 49-1	298 33-6 43-0	358 16-1 42-4	142 01-6 37-9													
18	192	34-0	136 26-0 N 16 49-7	313 36-2 S 23 43-1	13 18-3 N 1 42-2	157 03-9 N 11 37-9	Kochab	137 17-3 N 74 17-0											
19	207	36-5	151 25-8 50-3	328 38-8 43-1	28 20-5 42-1	172 06-1 38-0	Markab	14 11-3 N 15 02-4											
20	222	38-9	166 25-6 50-9	343 41-4 43-1	43 22-7 42-0	187 08-4 38-1	Menkar	314 49-9 N 3 58-4											
21	237	41-4	181 25-4 51-5	358 44-0 43-1	58 24-9 41-9	202 10-7 38-1	Menkent	148 46-7 S 36 13-5											
22	252	43-9	196 25-2 52-2	13 46-6 43-1	73 27-1 41-8	217 13-0 38-2	Miaplacidus	221 47-9 S 69 35-6											
23	267	46-3	211 25-0 52-8	28 49-2 43-1	88 29-3 41-6	232 15-3 38-2													
5	00	282	48-8	226 24-8 N 16 53-4	43 51-8 S 23 43-1	103 31-5 N 1 41-5	247 17-5 N 11 38-3	Mirfak	309 28-4 N 49 45-2										
	01	297	51-3	241 24-7 54-0	58 54-4 43-2	118 33-7 41-4	262 19-8 38-3	Nunki	76 39-0 S 26 20-3										
	02	312	53-7	256 24-5 54-6	73 57-0 43-2	133 35-9 41-3	277 22-1 38-4	Peacock	54 10-6 S 56 50-0										
	03	327	56-2	271 24-3 55-2	88 59-6 43-2	148 38-1 41-2	292 24-4 38-4	Pollux	244 08-5 N 28 06-2										
	04	342	58-7	286 24-1 55-8	104 02-2 43-2	163 40-3 41-0	307 26-7 38-5	Procyon	245 34-7 N 5 18-4										
05	358	01-1	301 23-9 56-4	119 04-7 43-2	178 42-5 40-9	322 28-9 38-5													
06	13	03-6	316 23-7 N 16 57-1	134 07-3 S 23 43-2	193 44-7 N 1 40-8	337 31-2 N 11 38-6	Rasalhague	96 36-9 N 12 34-8											
07	28	06-1	331 23-5 57-7	149 09-9 43-3	208 47-0 40-7	352 33-5 38-6	Regulus	208 18-9 N 12 07-2											
08	43	08-5	346 23-3 58-3	164 12-5 43-3	223 49-2 40-5	7 35-8 38-7	Rigel	281 44-2 S 8 14-0											
09	58	11-0	1 23-1 58-9	179 15-1 43-3	238 51-4 40-4	22 38-0 38-7	Rigel Kent.	140 37-0 S 60 42-9											
10	73	13-4	16 22-9 59-5	194 17-7 43-3	253 53-6 40-3	37 40-3 38-8	Sabik	102 50-3 S 15 41-5											
11	88	15-9	31 22-7 00-1	209 20-2 43-3	268 55-8 40-2	52 42-6 38-8													
12	103	18-4	46 22-5 N 17 00-7	224 22-8 S 23 43-3	283 58-0 N 1 40-1	67 44-9 N 11 38-9	Schedar	350 18-7 N 56 22-0											
13	118	20-8	61 22-3 01-3	239 25-4 43-4	299 00-2 39-9	82 47-2 39-0	Shaula	97 06-6 S 37 05-2											
14	133	23-3	76 22-0 01-9	254 28-0 43-4	314 02-4 39-8	97 49-5 39-0	Sirius	259 03-3 S 16 40-2											
15	148	25-8	91 21-8 02-5	269 30-5 43-4	329 04-6 39-7	112 51-7 39-1	Spica	159 06-2 S 11 00-2											
16	163	28-2	106 21-6 03-1	284 33-1 43-4	344 06-8 39-6	127 54-0 39-1	Suhail	223 17-4 S 43 18-6											
17	178	30-7	121 21-4 03-8	299 35-7 43-4	359 09-0 39-4	142 56-3 39-2													
18	193	33-2	136 21-2 N 17 04-4	314 38-2 S 23 43-4	14 11-2 N 1 39-3	157 58-6 N 11 39-2	Vega	81 01-0 N 38 45-2											
19	208	35-6	151 21-0 05-0	329 40-8 43-5	29 13-4 39-2	173 00-9 39-3	Zuben'ubi	137 42-0 S 15 55-1											
20	223	38-1	166 20-8 05-6	344 43-4 43-5	44 15-6 39-1	188 03-1 39-3													
21	238	40-6	181 20-6 06-2	359 45-9 43-5	59 17-8 38-9	203 05-4 39-4													
22	253	43-0	196 20-4 06-8	14 48-5 43-5	74 20-0 38-8	218 07-7 39-4	Venus	304 39-6 h 8 54											
23	268	45-5	211 20-2 07-4	29 51-0 43-5	89 22-2 38-7	233 10-0 39-5	Mars	120 59-4 21 05											
								Jupiter	180 48-8 17 07										
								Saturn	324 33-2 7 33										
Mer. Pass.		5 11-8	v -0-2 d 0-6	v 2-6 d 0-0	v 2-2 d 0-1	v 2-3 d 0-1													

	ARIES	VENUS -3-8	MARS -1-4	JUPITER -1-5	SATURN +0-6	STARS
G.M.T.	G.H.A.	G.H.A. Dec.	G.H.A. Dec.	G.H.A. Dec.	G.H.A. Dec.	Name S.H.A. Dec.
d h	o ' "	o ' " o ' "	o ' " o ' "	o ' " o ' "	o ' " o ' "	o ' " o ' "
SUNDAY	6 00 283 47-9	226 20-0 N 17 08-0	44 53-6 S 23 43-6	104 24-4 N 1 38-6	248 12-3 N 11 39-5	Acamar 315 43-5 S 40 25-2
	01 298 50-4	241 19-8 08-6	59 56-1 43-6	119 26-6 38-4	263 14-5 39-6	Achernar 335 51-2 S 57 23-1
	02 313 52-9	256 19-5 09-2	74 58-7 43-6	134 28-8 38-3	278 16-8 39-6	Acruz 173 46-9 S 62 56-1
	03 328 55-3	271 19-3 .. 09-8	90 01-2 .. 43-6	149 31-0 .. 38-2	293 19-1 .. 39-7	Adhara 255 39-0 S 28 55-6
	04 343 57-8	286 19-1 10-4	105 03-8 43-6	164 33-2 38-1	308 21-4 39-7	Aldebaran 291 27-7 N 16 27-1
	05 359 00-3	301 18-9 11-0	120 06-3 43-6	179 35-4 38-0	323 23-7 39-8	
	06 14 02-7	316 18-7 N 17 11-6	135 08-9 S 23 43-7	194 37-6 N 1 37-8	338 26-0 N 11 39-8	Alioth 166 49-4 N 56 07-8
	07 29 05-2	331 18-5 12-2	150 11-4 43-7	209 39-8 37-7	353 28-2 39-9	Alkaid 153 24-6 N 49 28-1
	08 44 07-7	346 18-2 12-8	165 14-0 43-7	224 42-0 37-6	8 30-5 39-9	Al Na'ir 28 24-7 S 47 06-4
	09 59 10-1	1 18-0 .. 13-4	180 16-5 .. 43-7	239 44-2 .. 37-5	23 32-8 .. 40-0	Alnilam 276 20-3 S 1 13-0
	10 74 12-6	16 17-8 14-0	195 19-1 43-8	254 46-4 37-3	38 35-1 40-0	Alphard 218 28-9 S 8 31-5
	11 89 15-1	31 17-6 14-6	210 21-6 43-8	269 48-6 37-2	53 37-4 40-1	
	12 104 17-5	46 17-4 N 17 15-2	225 24-1 S 23 43-8	284 50-8 N 1 37-1	68 39-7 N 11 40-1	Alphecca 126 38-8 N 26 49-0
	13 119 20-0	61 17-2 15-8	240 26-7 43-8	299 53-0 37-0	83 41-9 40-2	Alpheratz 358 17-9 N 28 55-2
	14 134 22-4	76 16-9 16-4	255 29-2 43-8	314 55-2 36-8	98 44-2 40-2	Altair 62 40-2 N 8 47-1
	15 149 24-9	91 16-7 .. 17-0	270 31-8 .. 43-9	329 57-4 .. 36-7	113 46-5 .. 40-3	Ankaa 353 48-1 S 42 28-0
	16 164 27-4	106 16-5 17-6	285 34-3 43-9	344 59-6 36-6	128 48-8 40-3	Antares 113 06-7 S 26 22-1
	17 179 29-8	121 16-3 18-2	300 36-8 43-9	0 01-8 36-5	143 51-1 40-4	
	18 194 32-3	136 16-0 N 17 18-8	315 39-3 S 23 43-9	15 03-9 N 1 36-3	158 53-4 N 11 40-4	Arcturus 146 25-8 N 19 20-5
	19 209 34-8	151 15-8 19-4	330 41-9 43-9	30 06-1 36-2	173 55-6 40-5	Atria 108 37-9 S 68 58-7
	20 224 37-2	166 15-6 20-0	345 44-4 44-0	45 08-3 36-1	188 57-9 40-5	Avior 234 32-4 S 59 24-6
	21 239 39-7	181 15-4 .. 20-6	0 46-9 .. 44-0	60 10-5 .. 36-0	204 00-2 .. 40-6	Bellatrix 279 07-9 N 6 19-6
	22 254 42-2	196 15-1 21-2	15 49-4 44-0	75 12-7 35-8	219 02-5 40-7	Betelgeuse 271 37-5 N 7 24-3
23 269 44-6	211 14-9 21-8	30 52-0 44-0	90 14-9 35-7	234 04-8 40-7		
MONDAY	7 00 284 47-1	226 14-7 N 17 22-4	45 54-5 S 23 44-1	105 17-1 N 1 35-6	249 07-1 N 11 40-8	Canopus 264 11-4 S 52 40-5
	01 299 49-5	241 14-4 23-0	60 57-0 44-1	120 19-3 35-5	264 09-4 40-8	Capella 281 23-9 N 45 58-2
	02 314 52-0	256 14-2 23-6	75 59-5 44-1	135 21-5 35-3	279 11-6 40-9	Deneb 49 53-8 N 45 10-1
	03 329 54-5	271 14-0 .. 24-1	91 02-0 .. 44-1	150 23-7 .. 35-2	294 13-9 .. 40-9	Denebola 183 07-4 N 14 44-7
	04 344 56-9	286 13-8 24-7	106 04-5 44-2	165 25-9 35-1	309 16-2 41-0	Diphda 349 29-0 S 18 09-0
	05 359 59-4	301 13-5 25-3	121 07-1 44-2	180 28-1 35-0	324 18-5 41-0	
	06 15 01-9	316 13-3 N 17 25-9	136 09-6 S 23 44-2	195 30-3 N 1 34-8	339 20-8 N 11 41-1	Dubhe 194 32-2 N 61 55-2
	07 30 04-3	331 13-1 26-5	151 12-1 44-2	210 32-5 34-7	354 23-1 41-1	Elnath 278 54-9 N 28 35-1
	08 45 06-8	346 12-8 27-1	166 14-6 44-3	225 34-7 34-6	9 25-4 41-2	Eltanin 91 01-0 N 51 29-5
	09 60 09-3	1 12-6 .. 27-7	181 17-1 .. 44-3	240 36-9 .. 34-5	24 27-6 .. 41-2	Enif 34 19-4 N 9 44-0
	10 75 11-7	16 12-4 28-3	196 19-6 44-3	255 39-1 34-3	39 29-9 41-3	Fomalhaut 16 00-2 S 29 46-9
	11 90 14-2	31 12-1 28-9	211 22-1 44-3	270 41-3 34-2	54 32-2 41-3	
	12 105 16-7	46 11-9 N 17 29-5	226 24-6 S 23 44-4	285 43-5 N 1 34-1	69 34-5 N 11 41-4	Gacrux 172 38-3 S 56 56-8
	13 120 19-1	61 11-6 30-0	241 27-1 44-4	300 45-6 33-9	84 36-8 41-4	Gienah 176 26-6 S 17 22-4
	14 135 21-6	76 11-4 30-6	256 29-6 44-4	315 47-8 33-8	99 39-1 41-5	Hadar 149 35-1 S 60 13-9
	15 150 24-0	91 11-2 .. 31-2	271 32-1 .. 44-4	330 50-0 .. 33-7	114 41-4 .. 41-5	Hamal 328 38-4 N 23 19-1
	16 165 26-5	106 10-9 31-8	286 34-6 44-5	345 52-2 33-6	129 43-6 41-6	Kaus Aust. 84 27-3 S 34 24-2
	17 180 29-0	121 10-7 32-4	301 37-1 44-5	0 54-4 33-4	144 45-9 41-6	
	18 195 31-4	136 10-5 N 17 33-0	316 39-6 S 23 44-5	15 56-6 N 1 33-3	159 48-2 N 11 41-7	Kochab 137 17-4 N 74 17-0
	19 210 33-9	151 10-2 33-6	331 42-0 44-5	30 58-8 33-2	174 50-5 41-7	Markab 14 11-2 N 15 02-4
	20 225 36-4	166 10-0 34-2	346 44-5 44-6	46 01-0 33-1	189 52-8 41-8	Menkar 314 49-9 N 3 58-4
	21 240 38-8	181 09-7 .. 34-7	1 47-0 .. 44-6	61 03-2 .. 32-9	204 55-1 .. 41-8	Menkent 148 46-7 S 36 13-5
	22 255 41-3	196 09-5 35-3	16 49-5 44-6	76 05-4 32-8	219 57-4 41-9	Miaplacidus 221 48-0 S 69 35-5
23 270 43-8	211 09-2 35-9	31 52-0 44-7	91 07-6 32-7	234 59-7 41-9		
TUESDAY	8 00 285 46-2	226 09-0 N 17 36-5	46 54-5 S 23 44-7	106 09-8 N 1 32-5	250 02-0 N 11 42-0	Mirfak 309 28-3 N 49 45-2
	01 300 48-7	241 08-8 37-1	61 56-9 44-7	121 11-9 32-4	265 04-2 42-0	Nunki 76 38-9 S 26 20-3
	02 315 51-2	256 08-5 37-7	76 59-4 44-7	136 14-1 32-3	280 06-5 42-1	Peacock 54 10-6 S 56 50-0
	03 330 53-6	271 08-3 .. 38-2	92 01-9 .. 44-8	151 16-3 .. 32-2	295 08-8 .. 42-1	Pollux 244 08-5 N 28 06-2
	04 345 56-1	286 08-0 38-8	107 04-4 44-8	166 18-5 32-0	310 11-1 .. 42-2	Procyon 245 34-7 N 5 18-4
	05 0 58-5	301 07-8 39-4	122 06-8 44-8	181 20-7 31-9	325 13-4 42-2	
	06 16 01-0	316 07-5 N 17 40-0	137 09-3 S 23 44-9	196 22-9 N 1 31-8	340 15-7 N 11 42-3	Rasalhague 96 36-9 N 12 34-8
	07 31 03-5	331 07-3 40-6	152 11-8 44-9	211 25-1 31-6	355 18-0 42-3	Regulus 208 18-9 N 12 07-2
	08 46 05-9	346 07-0 41-1	167 14-3 44-9	226 27-3 31-5	10 20-3 42-3	Rigel 281 44-2 S 8 13-9
	09 61 08-4	1 06-8 .. 41-7	182 16-7 .. 45-0	241 29-5 .. 31-4	25 22-6 .. 42-4	Rigel Kent. 140 37-0 S 60 42-9
	10 76 10-9	16 06-5 42-3	197 19-2 45-0	256 31-6 31-3	40 24-8 42-4	Sabik 102 50-3 S 15 41-5
	11 91 13-3	31 06-3 42-9	212 21-6 45-0	271 33-8 31-1	55 27-1 42-5	
	12 106 15-8	46 06-0 N 17 43-4	227 24-1 S 23 45-0	286 36-0 N 1 31-0	70 29-4 N 11 42-5	Schedar 350 18-7 N 56 22-0
	13 121 18-3	61 05-8 44-0	242 26-6 45-1	301 38-2 30-9	85 31-7 42-6	Shaula 97 06-6 S 37 05-2
	14 136 20-7	76 05-5 44-6	257 29-0 45-1	316 40-4 30-7	100 34-0 42-6	Sirius 259 03-3 S 16 40-2
	15 151 23-2	91 05-2 .. 45-2	272 31-5 .. 45-1	331 42-6 .. 30-6	115 36-3 .. 42-7	Spica 159 06-2 S 11 00-2
	16 166 25-6	106 05-0 45-8	287 33-9 45-2	346 44-8 30-5	130 38-6 42-7	Suhail 223 17-4 S 43 18-5
	17 181 28-1	121 04-7 46-3	302 36-4 45-2	1 47-0 30-4	145 40-9 42-8	
	18 196 30-6	136 04-5 N 17 46-9	317 38-9 S 23 45-2	16 49-1 N 1 30-2	160 43-2 N 11 42-8	Vega 81 01-0 N 38 45-2
	19 211 33-0	151 04-2 47-5	332 41-3 45-3	31 51-3 30-1	175 45-5 42-9	Zuben'ubli 137 42-0 S 15 55-1
	20 226 35-5	166 04-0 48-1	347 43-8 45-3	46 53-5 30-0	190 47-7 42-9	
	21 241 38-0	181 03-7 .. 48-6	2 46-2 .. 45-3	61 55-7 .. 29-8	205 50-0 .. 43-0	
	22 256 40-4	196 03-4 49-2	17 48-7 45-4	76 57-9 29-7	220 52-3 43-0	Venus 301 27-6 h 5 55
23 271 42-9	211 03-2 49-8	32 51-1 45-4	92 00-1 29-6	235 54-6 43-1	Mars 121 07-4 20 53	
Mer. Pass.	5 00-0	v -0-2 d 0-6	v 2-5 d 0-0	v 2-2 d 0-1	v 2-3 d 0-1	Jupiter 180 30-0 16 56
						Saturn 324 20-0 7 22

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise							
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	6	7	8	9			
d	h	°	'	°	'	°	'	'	h	m	h	m	h	m	h	m	h	m	
SUNDAY	00	178	52.0	N 22	44.1	277	47.3	14.3	N	3	51.4	15.6	57.3	22	07	21	14		
	01	193	51.9		43.9	292	20.6	14.3					22	21	21	44			
	02	208	51.8		43.7	306	53.9	14.3					22	32	22	07			
	03	223	51.7		43.4	321	27.2	14.4					22	41	22	24	21 11		
	04	238	51.6		43.2	336	00.6	14.3					22	49	22	39	22 07		
	05	253	51.5		42.9	350	33.9	14.4					22	56	22	46	22 40		
	06	268	51.4	N 22	42.7	5	07.3	14.4	N	5	24.6	15.3	57.1	23	02	23	02	23 04	
	07	283	51.2		42.4	19	40.7	14.4					23	12	23	19	23 24		
	08	298	51.1		42.2	34	14.1	14.4					23	16	23	26	23 54		
	09	313	51.0		41.9	48	47.5	14.4					23	20	23	32	24 07		
	10	328	50.9		41.7	63	20.9	14.4					23	24	23	38	24 18		
	11	343	50.8		41.4	77	54.3	14.5					23	27	23	41	00 13		
	12	358	50.7	N 22	41.2	92	27.8	14.4	N	6	56.2	15.1	56.9	23	30	24	02	00 28	
	13	13	50.6		40.9	107	01.2	14.4					23	34	24	11	00 11	00 40	
	14	28	50.5		40.7	121	34.6	14.5					23	37	24	19	00 19	00 51	
	15	43	50.4		40.4	136	08.1	14.4					23	40	24	27	00 33	01 10	
	16	58	50.3		40.1	150	41.5	14.5					23	43	24	35	00 45	01 27	
	17	73	50.2		39.9	165	15.0	14.4					23	46	24	43	00 56	01 42	
	18	88	50.1	N 22	39.6	179	48.4	14.4	N	8	26.0	14.8	56.7	24	00	25	01	01 58	
	19	103	50.0		39.4	194	21.8	14.5					24	03	25	02	01 21	02 14	
	20	118	49.9		39.1	208	55.3	14.4					24	06	25	03	01 35	02 34	
	21	133	49.8		38.9	223	28.7	14.4					24	09	26	04	01 44	02 45	
	22	148	49.7		38.6	238	02.1	14.5					24	12	26	05	01 53	02 58	
	23	163	49.6		38.3	252	35.6	14.4					24	15	27	06	02 05	03 14	
MONDAY	00	178	49.5	N 22	38.1	267	09.0	14.4	N	9	54.0	14.4	56.5	25	03	01	03	03 33	
	01	193	49.4		37.8	281	42.4	14.4					25	07	01	07	02 25	03 42	
	02	208	49.3		37.6	296	15.8	14.3					25	11	01	11	02 32	03 53	
	03	223	49.2		37.3	310	49.1	14.4					25	15	01	16	02 40	04 04	
	04	238	49.1		37.0	325	22.5	14.4					25	19	01	22	02 49	04 18	
	05	253	49.0		36.8	339	55.9	14.3					25	23	01	27	03 00	04 34	
	06	268	48.9	N 22	36.5	354	29.2	14.3	N 11	19.8	14.1	56.3	25	27	01	31			
	07	283	48.8		36.2	9	02.5	14.3					25	31	01	35			
	08	298	48.7		36.0	23	35.8	14.3					25	35	01	39			
	09	313	48.6		35.7	38	09.1	14.3					25	39	01	43			
	10	328	48.5		35.4	52	42.4	14.3					25	43	01	47			
	11	343	48.4		35.2	67	15.7	14.2					25	47	01	51			
	12	358	48.3	N 22	34.9	81	48.9	14.2	N 12	43.4	13.7	56.1	25	51	01	55			
	13	13	48.2		34.6	96	22.1	14.2					25	55	01	59			
	14	28	48.1		34.4	110	55.3	14.2					25	59	01	03			
	15	43	48.0		34.1	125	28.5	14.1					26	03	01	07			
	16	58	47.9		33.8	140	01.6	14.1					26	07	01	11			
	17	73	47.8		33.6	154	34.7	14.1					26	11	01	15			
	18	88	47.7	N 22	33.3	169	07.8	14.1	N 14	04.5	13.2	55.9	26	15	01	19			
	19	103	47.6		33.0	183	40.9	14.0					26	19	01	23			
	20	118	47.5		32.7	198	13.9	14.0					26	23	01	27			
	21	133	47.4		32.5	212	46.9	13.9					26	27	01	31			
	22	148	47.3		32.2	227	19.9	13.9					26	31	01	35			
	23	163	47.2		31.9	241	52.8	13.9					26	35	01	39			
TUESDAY	00	178	47.1	N 22	31.6	256	25.7	13.9	N 15	23.0	12.8	55.7	26	39	01	43	14 25	15 29	
	01	193	47.0		31.4	270	58.6	13.9					26	43	01	47	14 33	15 35	
	02	208	46.9		31.1	285	31.5	13.8					26	47	01	51	14 41	15 43	
	03	223	46.8		30.8	300	04.3	13.7					26	51	01	55	14 49	15 49	
	04	238	46.7		30.5	314	37.0	13.8					26	55	01	59	14 57	15 57	
	05	253	46.6		30.2	329	09.8	13.7					26	59	01	03	15 05	16 05	
	06	268	46.5	N 22	30.0	343	42.5	13.7	N 16	38.7	12.3	55.6	26	03	01	07	15 13	16 13	
	07	283	46.4		29.7	358	15.2	13.6					26	07	01	11	15 21	16 21	
	08	298	46.3		29.4	12	47.8	13.6					26	11	01	15	15 29	16 29	
	09	313	46.2		29.1	27	20.4	13.5					26	15	01	19	15 37	16 37	
	10	328	46.1		28.8	41	52.9	13.5					26	19	01	23	15 45	16 45	
	11	343	46.0		28.5	56	25.4	13.5					26	23	01	27	15 53	16 53	
	12	358	45.9	N 22	28.3	70	57.9	13.4	N 17	51.4	11.8	55.4	26	27	01	31	16 01	17 01	
	13	13	45.8		28.0	85	30.3	13.4					26	31	01	35	16 09	17 09	
	14	28	45.7		27.7	100	02.7	13.4					26	35	01	39	16 17	17 17	
	15	43	45.6		27.4	114	35.1	13.3					26	39	01	43	16 25	17 25	
	16	58	45.5		27.1	129	07.4	13.2					26	43	01	47	16 33	17 33	
	17	73	45.4		26.8	143	39.6	13.2					26	47	01	51	16 41	17 41	
	18	88	45.3	N 22	26.5	158	11.9	13.1	N 19	01.0	11.3	55.3	26	51	01	55	16 49	17 49	
	19	103	45.2		26.2	172	44.0	13.2					26	55	01	59	16 57	17 57	
	20	118	45.1		26.0	187	16.2	13.0					26	59	01	03	17 05	18 05	
	21	133	45.0		25.7	201	48.2	13.1					26	03	01	07	17 13	18 13	
	22	148	44.9		25.4	216	20.3	13.0					26	07	01	11	17 21	18 21	
	23	163	44.8		25.1	230	52.3	12.9					26	11	01	15	17 29	18 29	
		S.D. 15.8 d 0.3		S.D. 15.5		15.3		15.1											
										SUN				MOON					
										Day		Eqn. of Time		Mer. Pass.		Mer. Upper		Pass. Lower	
												00 ^h		12 ^h				Age	
												m s		m s		h m		h m	
												6		7		8		9	
												04 32		04 37		12 05		05 39	
												04 42		04 47		12 05		06 23	
												04 52		04 56		12 05		07 07	



G.M.T.	ARIES		VENUS -3-7		MARS -1-4		JUPITER -1-5		SATURN +0-6		STARS		
	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h													
WEDNESDAY													
9 00	286 45-4	226 02-9 N17 50-3	47 53-5 S 23 45-4	107 02-3 N 1 29-4	250 56-9 N11 43-1	Acamar	315 43-5	S 40 25-2					
01	301 47-8	241 02-7 50-9	62 56-0 45-5	122 04-4 29-3	265 59-2 43-2	Achernar	335 51-1	S 57 23-1					
02	316 50-3	256 02-4 51-5	77 58-4 45-5	137 06-6 29-2	281 01-5 43-2	Acrux	173 46-9	S 62 56-1					
03	331 52-7	271 02-1 52-1	93 00-9 45-5	152 08-8 29-1	296 03-8 43-3	Adhara	255 39-0	S 28 55-6					
04	346 55-2	286 01-9 52-6	108 03-3 45-6	167 11-0 28-9	311 06-1 43-3	Aldebaran	291 27-7	N 16 27-1					
05	1 57-7	301 01-6 53-2	123 05-7 45-6	182 13-2 28-8	326 08-4 43-4								
06	17 00-1	316 01-3 N17 53-8	138 08-2 S 23 45-6	197 15-4 N 1 28-7	341 10-7 N11 43-4	Alioth	166 49-4	N 56 07-8					
07	32 02-6	331 01-1 54-3	153 10-6 45-7	212 17-5 28-5	356 13-0 43-5	Alkaid	153 24-6	N 49 28-1					
08	47 05-1	346 00-8 54-9	168 13-0 45-7	227 19-7 28-4	11 15-2 43-5	Al Na'ir	28 24-7	S 47 06-4					
09	62 07-5	1 00-5 55-5	183 15-5 45-7	242 21-9 28-3	26 17-5 43-6	Anilam	276 20-3	S 1 13-0					
10	77 10-0	16 00-3 56-0	198 17-9 45-8	257 24-1 28-1	41 19-8 43-6	Alphard	218 28-9	S 8 31-5					
11	92 12-5	31 00-0 56-6	213 20-3 45-8	272 26-3 28-0	56 22-1 43-6								
12	107 14-9	45 59-7 N17 57-2	228 22-7 S 23 45-8	287 28-5 N 1 27-9	71 24-4 N11 43-7	Alphecca	126 38-8	N 26 49-0					
13	122 17-4	60 59-5 57-7	243 25-2 45-9	302 30-6 27-8	86 26-7 43-7	Alpheratz	358 17-8	N 28 55-2					
14	137 19-9	75 59-2 58-3	258 27-6 45-9	317 32-8 27-6	101 29-0 43-8	Altair	62 40-2	N 8 47-1					
15	152 22-3	90 58-9 58-9	273 30-0 45-9	332 35-0 27-5	116 31-3 43-8	Ankaa	353 48-0	S 42 28-0					
16	167 24-8	105 58-7 17 59-4	288 32-4 46-0	347 37-2 27-4	131 33-6 43-9	Antares	113 06-7	S 26 22-1					
17	182 27-2	120 58-4 18 00-0	303 34-8 46-0	2 39-4 27-2	146 35-9 43-9								
18	197 29-7	135 58-1 N18 00-6	318 37-3 S 23 46-0	17 41-6 N 1 27-1	161 38-2 N11 44-0	Arcturus	146 25-8	N 19 20-5					
19	212 32-2	150 57-8 01-1	333 39-7 46-1	32 43-7 27-0	176 40-5 44-0	Atria	108 37-9	S 68 58-7					
20	227 34-6	165 57-6 01-7	348 42-1 46-1	47 45-9 26-8	191 42-8 44-1	Avior	234 32-4	S 59 24-6					
21	242 37-1	180 57-3 02-2	3 44-5 46-2	62 48-1 26-7	206 45-1 44-1	Bellatrix	279 07-8	N 6 19-6					
22	257 39-6	195 57-0 02-8	18 46-9 46-2	77 50-3 26-6	221 47-4 44-2	Betelgeuse	271 37-5	N 7 24-3					
23	272 42-0	210 56-7 03-4	33 49-3 46-2	92 52-5 26-4	236 49-7 44-2								
THURSDAY													
10 00	287 44-5	225 56-5 N18 03-9	48 51-7 S 23 46-3	107 54-6 N 1 26-3	251 51-9 N11 44-3	Canopus	264 11-4	S 52 40-5					
01	302 47-0	240 56-2 04-5	63 54-1 46-3	122 56-8 26-2	266 54-2 44-3	Capella	281 23-9	N 45 58-2					
02	317 49-4	255 55-9 05-0	78 56-5 46-3	137 59-0 26-0	281 56-5 44-4	Deneb	49 53-7	N 45 10-1					
03	332 51-9	270 55-6 05-6	93 58-9 46-4	153 01-2 25-9	296 58-8 44-4	Denebola	183 07-5	N 14 44-7					
04	347 54-4	285 55-3 06-2	109 01-3 46-4	168 03-4 25-8	312 01-1 44-4	Diphda	349 29-0	S 18 09-0					
05	2 56-8	300 55-1 06-7	124 03-7 46-5	183 05-5 25-7	327 03-4 44-5								
06	17 59-3	315 54-8 N18 07-3	139 06-1 S 23 46-5	198 07-7 N 1 25-5	342 05-7 N11 44-5	Dubhe	194 32-2	N 61 55-2					
07	33 01-7	330 54-5 07-8	154 08-5 46-5	213 09-9 25-4	357 08-0 44-6	Atria	278 54-9	N 28 35-1					
08	48 04-2	345 54-2 08-4	169 10-9 46-6	228 12-1 25-3	12 10-3 44-6	Eltanin	91 01-0	N 51 29-5					
09	63 06-7	0 53-9 08-9	184 13-3 46-6	243 14-3 25-1	27 12-6 44-7	Enif	34 19-4	N 9 44-0					
10	78 09-1	15 53-6 09-5	199 15-7 46-7	258 16-4 25-0	42 14-9 44-7	Fomalhaut	16 00-1	S 29 46-9					
11	93 11-6	30 53-4 10-1	214 18-1 46-7	273 18-6 24-9	57 17-2 44-8								
12	108 14-1	45 53-1 N18 10-6	229 20-5 S 23 46-7	288 20-8 N 1 24-7	72 19-5 N11 44-8	Gacrux	172 38-3	S 56 56-8					
13	123 16-5	60 52-8 11-2	244 22-9 46-8	303 23-0 24-6	87 21-8 44-9	Gienah	176 26-6	S 17 22-4					
14	138 19-0	75 52-5 11-7	259 25-2 46-8	318 25-1 24-5	102 24-1 44-9	Hadar	149 35-2	S 60 13-9					
15	153 21-5	90 52-2 12-3	274 27-6 46-9	333 27-3 24-3	117 26-4 45-0	Hamal	328 38-3	N 23 19-1					
16	168 23-9	105 51-9 12-8	289 30-0 46-9	348 29-5 24-2	132 28-7 45-0	Kaus Aust.	84 27-3	S 34 24-2					
17	183 26-4	120 51-6 13-4	304 32-4 46-9	3 31-7 24-1	147 31-0 45-1								
18	198 28-9	135 51-3 N18 13-9	319 34-8 S 23 47-0	18 33-9 N 1 23-9	162 33-3 N11 45-1	Kochab	137 17-4	N 74 17-0					
19	213 31-3	150 51-1 14-5	334 37-1 47-0	33 36-0 23-8	177 35-6 45-1	Markab	14 11-2	N 15 02-4					
20	228 33-8	165 50-8 15-0	349 39-5 47-1	48 38-2 23-7	192 37-9 45-2	Menkar	314 49-9	N 3 58-4					
21	243 36-2	180 50-5 15-6	4 41-9 47-1	63 40-4 23-5	207 40-2 45-2	Menkent	148 46-7	S 36 13-5					
22	258 38-7	195 50-2 16-1	19 44-3 47-1	78 42-6 23-4	222 42-5 45-3	Miaplacidus	221 48-0	S 69 35-5					
23	273 41-2	210 49-9 16-7	34 46-6 47-2	93 44-7 23-3	237 44-8 45-3								
FRI DAY													
11 00	288 43-6	225 49-6 N18 17-2	49 49-0 S 23 47-2	108 46-9 N 1 23-1	252 47-1 N11 45-4	Mirfak	309 28-3	N 49 45-2					
01	303 46-1	240 49-3 17-8	64 51-4 47-3	123 49-1 23-0	267 49-4 45-4	Nunki	76 38-9	S 26 20-3					
02	318 48-6	255 49-0 18-3	79 53-7 47-3	138 51-3 22-9	282 51-7 45-5	Piccock	54 10-5	S 56 50-0					
03	333 51-0	270 48-7 18-9	94 56-1 47-4	153 53-4 22-7	297 54-0 45-5	Pollux	244 08-5	N 28 06-2					
04	348 53-5	285 48-4 19-4	109 58-5 47-4	168 55-6 22-6	312 56-3 45-6	Procyon	245 34-7	N 5 18-4					
05	3 56-0	300 48-1 20-0	125 00-8 47-4	183 57-8 22-5	327 58-6 45-6								
06	18 58-4	315 47-8 N18 20-5	140 03-2 S 23 47-5	199 00-0 N 1 22-3	343 00-9 N11 45-6	Rasalhague	96 36-9	N 12 34-8					
07	34 00-9	330 47-5 21-0	155 05-5 47-5	214 02-1 22-2	358 03-2 45-7	Regulus	208 18-9	N 12 07-2					
08	49 03-4	345 47-2 21-6	170 07-9 47-6	229 04-3 22-1	13 05-5 45-7	Rigel	281 44-2	S 8 13-9					
09	64 05-8	0 46-9 22-1	185 10-3 47-6	244 06-5 21-9	28 07-8 45-8	Rigel Kent.	140 37-0	S 60 42-9					
10	79 08-3	15 46-6 22-7	200 12-6 47-7	259 08-7 21-8	43 10-1 45-8	Sabik	102 50-3	S 15 41-5					
11	94 10-7	30 46-3 23-2	215 15-0 47-7	274 10-8 21-6	58 12-4 45-9								
12	109 13-2	45 46-0 N18 23-8	230 17-3 S 23 47-8	289 13-0 N 1 21-5	73 14-7 N11 45-9	Schedar	350 18-6	N 56 22-0					
13	124 15-7	60 45-7 24-3	245 19-7 47-8	304 15-2 21-4	88 17-0 46-0	Shaula	97 06-6	S 37 05-2					
14	139 18-1	75 45-4 24-8	260 22-0 47-8	319 17-4 21-2	103 19-3 46-0	Sirius	259 03-3	S 16 40-2					
15	154 20-6	90 45-1 25-4	275 24-4 47-9	334 19-5 21-1	118 21-6 46-1	Spica	159 06-2	S 11 00-2					
16	169 23-1	105 44-8 25-9	290 26-7 47-9	349 21-7 21-0	133 23-9 46-1	Suhail	223 17-4	S 43 18-5					
17	184 25-5	120 44-5 26-5	305 29-0 48-0	4 23-9 20-8	148 26-2 46-1								
18	199 28-0	135 44-2 N18 27-0	320 31-4 S 23 48-0	19 26-0 N 1 20-7	163 28-5 N11 46-2	Vega	81 01-0	N 38 45-2					
19	214 30-5	150 43-9 27-5	335 33-7 48-1	34 28-2 20-6	178 30-8 46-2	Zuben'ubi	137 42-0	S 15 55-1					
20	229 32-9	165 43-6 28-1	350 36-1 48-1	49 30-4 20-4	193 33-1 46-3								
21	244 35-4	180 43-3 28-6	5 38-4 48-2	64 32-6 20-3	208 35-4 46-3								
22	259 37-9	195 43-0 29-1	20 40-7 48-2	79 34-7 20-2	223 37-7 46-4	Venus	298 12-0	h 8 56					
23	274 40-3	210 42-7 29-7	35 43-1 48-3	94 36-9 20-0	238 40-0 46-4	Mars	121 07-2	20 41					
Mer. Pass.	4 48-2	v -0-3 d 0-6	v 2-4 d 0-0	v 2-2 d 0-1	v 2-3 d 0-0	Jupiter	180 10-1	16 46					
						Saturn	324 07-4	7 11					

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise							
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.		Naut.	Civil		9	10	11	12				
d	h	°	'	°	'	°	'	°	'	°	h	m	h	m	h	m	h	m	h	m
WEDNESDAY	9 00	178	44.7	N 22	24.8	245	24.2	12.9	N 20	07.3	10.8	55.1	N 72	□	□	□	□	□	□	□
	01	193	44.6		24.5	259	56.1	12.9	20	18.1	10.6	55.1	N 70	□	□	□	□	□	□	□
	02	208	44.5		24.2	274	28.0	12.8	20	28.7	10.5	55.1	68	□	□	□	□	□	□	□
	03	223	44.4		23.9	288	59.8	12.7	20	39.2	10.5	55.1	66	///	///	01 11	21 11	□	□	□
	04	238	44.4		23.6	303	31.5	12.7	20	49.7	10.3	55.0	64	///	///	02 01	22 07	□	□	□
	05	253	44.3		23.3	318	03.2	12.7	21	00.0	10.2	55.0	62	///	///	02 31	22 40	22 32	□	□
	06	268	44.2	N 22	23.0	332	34.9	12.6	N 21	10.2	10.1	55.0	60	///	01 28	02 54	23 04	23 11	23 30	24 17
	07	283	44.1		22.7	347	06.5	12.5	21	20.3	10.1	55.0	N 58	///	02 04	03 12	23 24	23 39	24 07	00 07
	08	298	44.0		22.4	1 38.0	12.5		21	30.4	9.9	55.0	56	///	02 29	03 27	23 40	24 01	00 01	00 33
	09	313	43.9		22.1	16 09.5	12.5		21	40.3	9.8	54.9	54	01 21	02 49	03 40	23 54	24 18	00 18	00 54
	10	328	43.8		21.8	30 41.0	12.4		21	50.1	9.8	54.9	52	01 54	03 05	03 52	24 07	00 07	00 34	01 11
	11	343	43.7		21.5	45 12.4	12.3		21	59.9	9.6	54.9	50	02 18	03 19	04 02	24 18	00 18	00 47	01 26
	12	358	43.6	N 22	21.2	59 43.7	12.3		N 22	09.5	9.5	54.9	45	02 58	03 46	04 23	00 13	00 40	01 14	01 56
	13	13	43.5		20.9	74 15.0	12.3		22	19.0	9.4	54.9	N 40	03 27	04 07	04 40	00 28	00 59	01 35	02 19
	14	28	43.4		20.6	88 46.3	12.2		22	28.4	9.3	54.8	35	03 49	04 25	04 54	00 40	01 14	01 53	02 39
	15	43	43.3		20.3	103 17.5	12.2		22	37.7	9.2	54.8	30	04 06	04 39	05 06	00 51	01 28	02 09	02 55
	16	58	43.2		20.0	117 48.7	12.1		22	46.9	9.1	54.8	N 10	04 34	05 03	05 27	01 10	01 51	02 35	03 24
	17	73	43.1		19.7	132 19.8	12.0		22	56.0	8.9	54.8	0	05 13	05 39	06 02	01 42	02 30	03 19	04 10
	18	88	43.0	N 22	19.4	146 50.8	12.0		N 23	04.9	8.9	54.8	S 10	05 29	05 55	06 18	01 58	02 48	03 41	04 33
	19	103	43.0		19.1	161 21.8	11.9		23	13.8	8.8	54.7	20	05 45	06 12	06 36	02 14	03 09	04 04	04 57
	20	118	42.9		18.8	175 52.7	11.9		23	22.6	8.6	54.7	30	06 00	06 29	06 56	02 34	03 32	04 30	05 26
	21	133	42.8		18.5	190 23.6	11.9		23	31.2	8.6	54.7	35	06 08	06 39	07 07	02 45	03 46	04 46	05 42
	22	148	42.7		18.2	204 54.5	11.8		23	39.8	8.4	54.7	40	06 17	06 50	07 20	02 58	04 03	05 05	06 02
	23	163	42.6		17.9	219 25.3	11.7		23	48.2	8.3	54.7	45	06 26	07 03	07 36	03 14	04 22	05 27	06 26
THURSDAY	00	178	42.5	N 22	17.5	233 56.0	11.7	N 23	56.5	8.2	54.7	S 50	06 37	07 18	07 56	03 33	04 47	05 56	06 57	
	01	193	42.4		17.2	248 26.7	11.7	24	04.7	8.1	54.6	52	06 42	07 25	08 05	03 42	04 58	06 10	07 12	
	02	208	42.3		16.9	262 57.4	11.6	24	12.8	7.9	54.6	54	06 47	07 32	08 15	03 53	05 12	06 26	07 30	
	03	223	42.2		16.6	277 28.0	11.5	24	20.7	7.9	54.6	56	06 53	07 41	08 26	04 04	05 28	06 46	07 52	
	04	238	42.1		16.3	291 58.5	11.5	24	28.6	7.7	54.6	58	06 59	07 50	08 40	04 18	05 46	07 10	08 20	
	05	253	42.0		16.0	306 29.0	11.4	24	36.3	7.7	54.6	S 60	07 05	08 01	08 56	04 34	06 10	07 43	09 00	
	06	268	42.0	N 22	15.7	320 59.4	11.4	N 24	44.0	7.5	54.6									
	07	283	41.9		15.4	335 29.8	11.4	24	51.5	7.3	54.5	Lat.	Sun-set	Twilight	Moonset					
	08	298	41.8		15.1	350 00.2	11.3	24	58.8	7.3	54.5				9	10	11	12		
	09	313	41.7		14.7	4 30.5	11.2		25	06.1	7.2	54.5		h m	h m	h m	h m	h m	h m	h m
	10	328	41.6		14.4	19 00.7	11.2		25	13.3	7.0	54.5	N 72	□	□	□	□	□	□	□
	11	343	41.5		14.1	33 30.9	11.2		25	20.3	6.9	54.5	N 70	□	□	□	□	□	□	□
	12	358	41.4	N 22	13.8	48 01.1	11.1	N 25	27.2	6.8	54.5	68	□	□	□	□	□	□	□	□
	13	13	41.3		13.5	62 31.2	11.1	25	34.0	6.6	54.4	66	22 55	///	///	19 10	□	□	□	□
	14	28	41.2		13.2	77 01.3	11.0	25	40.6	6.6	54.4	64	22 08	///	///	18 16	□	□	□	□
	15	43	41.2		12.8	91 31.3	11.0	25	47.2	6.4	54.4	62	21 38	///	///	17 43	19 33	□	□	□
	16	58	41.1		12.5	106 01.3	10.9	25	53.6	6.3	54.4	60	21 15	22 40	///	17 19	18 54	20 21	21 22	
	17	73	41.0		12.2	120 31.2	10.9	25	59.9	6.2	54.4	N 58	20 57	22 05	///	17 00	18 27	19 44	20 43	
	18	88	40.9	N 22	11.9	135 01.1	10.8	N 26	06.1	6.0	54.4	56	20 42	21 40	///	16 44	18 05	19 18	20 16	
	19	103	40.8		11.6	149 30.9	10.8	26	12.1	5.9	54.4	54	20 29	21 21	22 47	16 31	17 48	18 58	19 54	
	20	118	40.7		11.2	164 00.7	10.8	26	18.0	5.8	54.4	52	20 18	21 05	22 15	16 19	17 33	18 41	19 37	
	21	133	40.6		10.9	178 30.5	10.7	26	23.8	5.7	54.3	50	20 08	20 51	21 52	16 09	17 20	18 26	19 22	
	22	148	40.5		10.6	193 00.2	10.6	26	29.5	5.5	54.3	45	19 47	20 24	21 11	15 47	16 54	17 56	18 51	
	23	163	40.5		10.3	207 29.8	10.7	26	35.0	5.4	54.3	N 40	19 30	20 03	20 43	15 29	16 33	17 33	18 27	
FRIDAY	00	178	40.4	N 22	09.9	221 59.5	10.6	N 26	40.4	5.3	54.3	35	19 16	19 46	20 21	15 15	16 15	17 14	18 08	
	01	193	40.3		09.6	236 29.1	10.5	26	45.7	5.2	54.3	30	19 04	19 31	20 04	15 02	16 01	16 57	17 51	
	02	208	40.2		09.3	250 58.6	10.5	26	50.9	5.0	54.3	20	18 43	19 08	19 36	14 41	15 35	16 30	17 22	
	03	223	40.1		09.0	265 28.1	10.5	26	55.9	4.9	54.3	N 10	18 26	18 48	19 15	14 22	15 14	16 06	16 58	
	04	238	40.0		08.6	279 57.6	10.4	27	00.8	4.7	54.3	0	18 09	18 31	18 57	14 05	14 53	15 44	16 35	
	05	253	39.9		08.3	294 27.0	10.4	27	05.5	4.7	54.2	S 10	17 52	18 15	18 41	13 47	14 33	15 22	16 13	
	06	268	39.8	N 22	08.0	308 56.4	10.4	N 27	10.2	4.5	54.2	20	17 35	17 59	18 26	13 29	14 12	14 58	15 48	
	07	283	39.8		07.6	323 25.8	10.3	27	14.7	4.4	54.2	30	17 15	17 41	18 11	13 08	13 47	14 30	15 20	
	08	298	39.7		07.3	337 55.1	10.3	27	19.1	4.2	54.2	35	17 04	17 31	18 03	12 56	13 32	14 14	15 03	
	09	313	39.6		07.0	352 24.4	10.3	27	23.3	4.1	54.2	40	16 50	17 20	17 54	12 41	13 15	13 55	14 43	
	10	328	39.5		06.7	6 53.7	10.2	27	27.4	4.0	54.2	45	16 35	17 08	17 44	12 25	12 55	13 32	14 19	
	11	343	39.4		06.3	21 22.9	10.3	27	31.4	3.8	54.2	S 50	16 15	16 53	17 34	12 04	12 29	13 03	13 48	
	12	358	39.3	N 22	06.0	35 52.2	10.1	N 27	35.2	3.7	54.2	52	16 06	16 46	17 29	11 55	12 17	12 49	13 33	
	13	13	39.3		05.7	50 21.3	10.2	27	38.9	3.6	54.2	54	15 56	16 38	17 24	11 44	12 03	12 32	13 15	
	14	28	39.2		05.3	64 50.5	10.1	27	42.5	3.4	54.2	56	15 44	16 30	17 18	11 31	11 47	12 13	12 53	
	15	43	39.1		05.0	79 19.6	10.1	27	45.9	3.3	54.1	58	15 31	16 21	17 12	11 17	11 28	11 48	12 25	
	16	58	39.0		04.7	93 48.7	10.1	27	49.2	3.2	54.1	S 60	15 15	16 10	17 06	11 00	11 04	11 15	11 44	
	17	73	38.9		04.3	108 17.8	10.0	27	52.4	3.0	54.1									
	18	88	38.8																	



G.M.T.	ARIES			VENUS -3.7			MARS -1.3			JUPITER -1.5			SATURN +0.6			STARS		
	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "		° ' "	° ' "
12	289 42.8	225 42.4	N 18 30.2	50 45.4	S 23 48.3		109 39.1	N 1 19.9	253 42.3	N 11 46.5		253 42.3	N 11 46.5			Acamar	315 43.5	S 40 25.2
01	304 45.2	240 42.1	30.8	65 47.7	48.4		124 41.2	19.8	268 44.6	46.5		268 44.6	46.5			Achernar	335 51.1	S 57 23.1
02	319 47.7	255 41.7	31.3	80 50.1	48.4		139 43.4	19.6	283 46.9	46.5		283 46.9	46.5			Acruz	173 47.0	S 62 56.1
03	334 50.2	270 41.4	31.8	95 52.4	48.5		154 45.6	19.5	298 49.2	46.6		298 49.2	46.6			Adhara	255 39.0	S 28 55.6
04	349 52.6	285 41.1	32.4	110 54.7	48.5		169 47.8	19.3	313 51.5	46.6		313 51.5	46.6			Aldebaran	291 27.7	N 16 27.1
05	4 55.1	300 40.8	32.9	125 57.0	48.6		184 49.9	19.2	328 53.8	46.7		328 53.8	46.7					
06	19 57.6	315 40.5	N 18 33.4	140 59.4	S 23 48.6		199 52.1	N 1 19.1	343 56.1	N 11 46.7		343 56.1	N 11 46.7			Alioth	166 49.4	N 56 07.8
07	35 00.0	330 40.2	33.9	156 01.7	48.6		214 54.3	18.9	358 58.4	46.8		358 58.4	46.8			Alkaid	153 24.6	N 49 28.1
08	50 02.5	345 39.9	34.5	171 04.0	48.7		229 56.4	18.8	14 00.7	46.8		14 00.7	46.8			Al Na'ir	28 24.7	S 47 06.4
09	65 05.0	0 39.6	35.0	186 06.3	48.7		244 58.6	18.7	29 03.0	46.9		29 03.0	46.9			Alnilam	276 20.3	S 1 13.0
10	80 07.4	15 39.2	35.5	201 08.6	48.8		260 00.8	18.5	44 05.3	46.9		44 05.3	46.9			Alphard	218 28.9	S 8 31.4
11	95 09.9	30 38.9	36.1	216 10.9	48.8		275 02.9	18.4	59 07.6	46.9		59 07.6	46.9					
12	110 12.4	45 38.6	N 18 36.6	231 13.3	S 23 48.9		290 05.1	N 1 18.2	74 09.9	N 11 47.0		74 09.9	N 11 47.0			Alphecca	126 38.8	N 26 49.0
13	125 14.8	60 38.3	37.1	246 15.6	48.9		305 07.3	18.1	89 12.2	47.0		89 12.2	47.0			Alpheratz	358 17.8	N 28 55.2
14	140 17.3	75 38.0	37.7	261 17.9	49.0		320 09.5	18.0	104 14.5	47.1		104 14.5	47.1			Altair	62 40.2	N 8 47.1
15	155 19.7	90 37.7	38.2	276 20.2	49.0		335 11.6	17.8	119 16.8	47.1		119 16.8	47.1			Ankaa	353 48.0	S 42 28.0
16	170 22.2	105 37.3	38.7	291 22.5	49.1		350 13.8	17.7	134 19.1	47.2		134 19.1	47.2			Antares	113 06.7	S 26 22.1
17	185 24.7	120 37.0	39.2	306 24.8	49.2		5 16.0	17.6	149 21.4	47.2		149 21.4	47.2					
18	200 27.1	135 36.7	N 18 39.8	321 27.1	S 23 49.2		20 18.1	N 1 17.4	164 23.7	N 11 47.3		164 23.7	N 11 47.3			Arcturus	146 25.8	N 19 20.5
19	215 29.6	150 36.4	40.3	336 29.4	49.3		35 20.3	17.3	179 26.0	47.3		179 26.0	47.3			Atria	108 38.0	S 68 58.8
20	230 32.1	165 36.1	40.8	351 31.7	49.3		50 22.5	17.2	194 28.3	47.3		194 28.3	47.3			Avior	234 32.4	S 59 24.6
21	245 34.5	180 35.7	41.3	6 34.0	49.4		65 24.6	17.0	209 30.6	47.4		209 30.6	47.4			Bellatrix	279 07.8	N 6 19.6
22	260 37.0	195 35.4	41.9	21 36.3	49.4		80 26.8	16.9	224 32.9	47.4		224 32.9	47.4			Betelgeuse	271 37.5	N 7 24.3
23	275 39.5	210 35.1	42.4	36 38.6	49.5		95 29.0	16.7	239 35.2	47.5		239 35.2	47.5					
13	290 41.9	225 34.8	N 18 42.9	51 40.9	S 23 49.5		110 31.1	N 1 16.6	254 37.5	N 11 47.5		254 37.5	N 11 47.5			Canopus	264 11.4	S 52 40.5
01	305 44.4	240 34.4	43.4	66 43.2	49.6		125 33.3	16.5	269 39.9	47.6		269 39.9	47.6			Capella	281 23.8	N 45 58.2
02	320 46.8	255 34.1	43.9	81 45.5	49.6		140 35.5	16.3	284 42.2	47.6		284 42.2	47.6			Deneb	49 53.7	N 45 10.1
03	335 49.3	270 33.8	44.5	96 47.8	49.7		155 37.6	16.2	299 44.5	47.6		299 44.5	47.6			Denebola	183 07.5	N 14 44.7
04	350 51.8	285 33.5	45.0	111 50.1	49.7		170 39.8	16.0	314 46.8	47.7		314 46.8	47.7			Diphda	349 28.9	S 18 09.0
05	5 54.2	300 33.1	45.5	126 52.3	49.8		185 42.0	15.9	329 49.1	47.7		329 49.1	47.7					
06	20 56.7	315 32.8	N 18 46.0	141 54.6	S 23 49.8		200 44.1	N 1 15.8	344 51.4	N 11 47.8		344 51.4	N 11 47.8			Dubhe	194 32.2	N 61 55.2
07	35 59.2	330 32.5	46.5	156 56.9	49.9		215 46.3	15.6	359 53.7	47.8		359 53.7	47.8			Elath	278 54.8	N 28 35.1
08	51 01.6	345 32.2	47.0	171 59.2	49.9		230 48.4	15.5	14 56.0	47.9		14 56.0	47.9			Eltanin	91 01.0	N 51 29.5
09	66 04.1	0 31.8	47.6	187 01.5	50.0		245 50.6	15.4	29 58.3	47.9		29 58.3	47.9			Enif	34 19.4	N 9 44.0
10	81 06.6	15 31.5	48.1	202 03.8	50.0		260 52.8	15.2	45 00.6	47.9		45 00.6	47.9			Fomalhaut	16 00.1	S 29 46.9
11	96 09.0	30 31.2	48.6	217 06.0	50.1		275 54.9	15.1	60 02.9	48.0		60 02.9	48.0					
12	111 11.5	45 30.8	N 18 49.1	232 08.3	S 23 50.2		290 57.1	N 1 14.9	75 05.2	N 11 48.0		75 05.2	N 11 48.0			Gacrux	172 38.3	S 56 56.8
13	126 14.0	60 30.5	49.6	247 10.6	50.2		305 59.3	14.8	90 07.5	48.1		90 07.5	48.1			Gienah	176 26.6	S 17 22.4
14	141 16.4	75 30.2	50.1	262 12.9	50.3		321 01.4	14.7	105 09.8	48.1		105 09.8	48.1			Hadar	149 35.2	S 60 14.0
15	156 18.9	90 29.8	50.6	277 15.1	50.3		336 03.6	14.5	120 12.1	48.2		120 12.1	48.2			Hamal	328 38.3	N 23 19.1
16	171 21.3	105 29.5	51.2	292 17.4	50.4		351 05.8	14.4	135 14.4	48.2		135 14.4	48.2			Kaus Aust.	84 27.3	S 34 24.2
17	186 23.8	120 29.2	51.7	307 19.7	50.4		6 07.9	14.2	150 16.8	48.2		150 16.8	48.2					
18	201 26.3	135 28.8	N 18 52.2	322 21.9	S 23 50.5		21 10.1	N 1 14.1	165 19.1	N 11 48.3		165 19.1	N 11 48.3			Kochab	137 17.5	N 74 17.0
19	216 28.7	150 28.5	52.7	337 24.2	50.5		36 12.2	14.0	180 21.4	48.3		180 21.4	48.3			Markab	14 11.2	N 15 02.4
20	231 31.2	165 28.2	53.2	352 26.5	50.6		51 14.4	13.8	195 23.7	48.4		195 23.7	48.4			Menkar	314 49.9	N 3 58.4
21	246 33.7	180 27.8	53.7	7 28.7	50.7		66 16.6	13.7	210 26.0	48.4		210 26.0	48.4			Menkent	148 46.7	S 36 13.5
22	261 36.1	195 27.5	54.2	22 31.0	50.7		81 18.7	13.6	225 28.3	48.5		225 28.3	48.5			Miaplacidus	221 48.0	S 69 35.5
23	276 38.6	210 27.1	54.7	37 33.3	50.8		96 20.9	13.4	240 30.6	48.5		240 30.6	48.5					
14	291 41.1	225 26.8	N 18 55.2	52 35.5	S 23 50.8		111 23.1	N 1 13.3	255 32.9	N 11 48.5		255 32.9	N 11 48.5			Mirfak	309 28.3	N 49 45.2
01	306 43.5	240 26.5	55.7	67 37.8	50.9		126 25.2	13.1	270 35.2	48.6		270 35.2	48.6			Nunki	76 38.9	S 26 20.3
02	321 46.0	255 26.1	56.3	82 40.0	50.9		141 27.4	13.0	285 37.5	48.6		285 37.5	48.6			Peacock	54 10.5	S 56 50.0
03	336 48.5	270 25.8	56.8	97 42.3	51.0		156 29.5	12.9	300 39.8	48.7		300 39.8	48.7			Pollux	244 08.5	N 28 06.2
04	351 50.9	285 25.4	57.3	112 44.5	51.0		171 31.7	12.7	315 42.1	48.7		315 42.1	48.7			Procyon	245 34.7	N 5 18.4
05	6 53.4	300 25.1	57.8	127 46.8	51.1		186 33.9	12.6	330 44.4	48.7		330 44.4	48.7					
06	21 55.8	315 24.8	N 18 58.3	142 49.0	S 23 51.2		201 36.0	N 1 12.4	345 46.8	N 11 48.8		345 46.8	N 11 48.8			Rasalhague	96 36.9	N 12 34.8
07	36 58.3	330 24.4	58.8	157 51.3	51.2		216 38.2	12.3	0 49.1	48.8		0 49.1	48.8			Regulus	208 18.9	N 12 07.2
08	52 00.8	345 24.1	59.3	172 53.5	51.3		231 40.4	12.2	15 51.4	48.9		15 51.4	48.9			Rigel	281 44.2	S 8 13.9
09	67 03.2	0 23.7	18 59.8	187 55.8	51.3		246 42.5	12.0	30 53.7	48.9		30 53.7	48.9			Rigel Kent.	140 37.0	S 60 42.9
10	82 05.7	15 23.4	19 00.3	202 58.0	51.4		261 44.7	11.9	45 56.0	49.0		45 56.0	49.0			Sabik	102 50.3	S 15 41.5
11	97 08.2	30 23.0	00.8	218 00.3	51.5		276 46.8	11.7	60 58.3	49.0		60 58.3	49.0					
12	112 10.6	45 22.7	N 19 01.3	233 02.5	S 23 51.5		291 49.0	N 1 11.6	76 00.6	N 11 49.0		76 00.6	N 11 49.0			Schedar	350 18.6	N 56 22.0
13	127 13.1	60 22.3	01.8	248 04.7	51.6		306 51.2	11.5	91 02.9	49.1		91 02.9	49.1			Shaula	97 06.6	S 37 05.2
14	142 15.6	75 22.0	02.3	263 07.0	51.6		321 53.3	11.3	106 05.2	49.1		106 05.2	49.1			Sirius	259 03.3	S 16 40.2
15	157 18.0	90 21.6	02.8	278 09.2	51.7		336 55.5	11.2	121 07.5	49.2		121 07.5	49.2			Spica	159 06.2	S 11 00.2
16	172 20.5	1																

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise								
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.		Naut.	Civil		12	13	14	15					
d	h	°	'	°	'	°	'	'	°	h	m	h	m	h	m	h	m	h	m		
12	00	178	38.3	N 22	01.9	209	40.7	9.9	N 28	10.8	2.1	54.1	N 72								
	01	193	38.3		01.6	224	09.6	9.9	N 28	12.9	1.9	54.1	N 70								
	02	208	38.2		01.3	238	38.5	9.9	N 28	14.8	1.8	54.1	68								
	03	223	38.1	..	00.9	253	07.4	9.9	N 28	16.6	1.7	54.1	66			01 25					
	04	238	38.0		00.6	267	36.3	9.8	N 28	18.3	1.5	54.1	64			02 09			01 52		
	05	253	37.9	22	00.2	282	05.1	9.9	N 28	19.8	1.4	54.0	62		00 27	02 37			00 44	02 37	
	06	268	37.9	N 21	59.9	296	34.0	9.8	N 28	21.2	1.3	54.0	60		01 37	02 59	24 17	00 17	01 35	03 06	
	07	283	37.8		59.5	311	02.8	9.9	N 28	22.5	1.1	54.0	N 58		02 11	03 17	00 07	00 56	02 06	03 29	
	08	298	37.7		59.2	325	31.7	9.8	N 28	23.6	1.0	54.0	56	00 26	02 34	03 31	00 33	01 23	02 29	03 47	
	09	313	37.6	..	58.8	340	00.5	9.8	N 28	24.6	0.8	54.0	54	01 29	02 53	03 44	00 54	01 44	02 48	04 02	
	10	328	37.5		58.5	354	29.3	9.8	N 28	25.4	0.7	54.0	52	02 00	03 09	03 55	01 11	02 02	03 04	04 15	
	11	343	37.4		58.1	8	58.1	9.9	N 28	26.1	0.6	54.0	50	02 22	03 22	04 05	01 26	02 17	03 18	04 27	
	12	358	37.4	N 21	57.8	23	27.0	9.8	N 28	26.7	0.4	54.0	45	03 02	03 49	04 25	01 56	02 47	03 46	04 51	
	13	13	37.3		57.5	37	55.8	9.8	N 28	27.1	0.3	54.0	N 40	03 30	04 10	04 42	02 19	03 11	04 08	05 10	
	14	28	37.2		57.1	52	24.6	9.8	N 28	27.4	0.2	54.0	35	03 51	04 27	04 56	02 39	03 30	04 27	05 26	
	15	43	37.1	..	56.7	66	53.4	9.8	N 28	27.6	0.0	54.0	30	04 08	04 41	05 08	02 55	03 47	04 42	05 39	
	16	58	37.1		56.4	81	22.2	9.9	N 28	27.6	0.0	54.0	20	04 35	05 04	05 28	03 24	04 15	05 09	06 03	
	17	73	37.0		56.0	95	51.1	9.8	N 28	27.4	0.2	54.0	N 10	04 56	05 23	05 46	03 48	04 39	05 32	06 23	
	18	88	36.9	N 21	55.7	110	19.9	9.8	N 28	27.2	0.4	54.0	0	05 14	05 40	06 02	04 10	05 02	05 53	06 42	
	19	103	36.8		55.3	124	48.7	9.9	N 28	26.8	0.6	54.0	S 10	05 30	05 56	06 18	04 33	05 24	06 14	07 00	
	20	118	36.7		55.0	139	17.6	9.8	N 28	26.2	0.6	54.0	20	05 44	06 12	06 35	04 57	05 49	06 36	07 20	
	21	133	36.7	..	54.6	153	46.4	9.9	N 28	25.6	0.9	54.0	30	05 59	06 29	06 55	05 26	06 17	07 03	07 43	
	22	148	36.6		54.3	168	15.3	9.9	N 28	24.7	0.9	54.0	35	06 07	06 39	07 06	05 42	06 33	07 18	07 56	
	23	163	36.5		53.9	182	44.2	9.9	N 28	23.8	1.1	54.0	40	06 16	06 49	07 19	06 02	06 53	07 36	08 12	
													45	06 25	07 02	07 35	06 26	07 16	07 57	08 30	
13	00	178	36.4	N 21	53.6	197	13.1	9.9	N 28	22.7	1.2	54.0	S 50	06 35	07 16	07 53	06 57	07 47	08 25	08 53	
	01	193	36.4		53.2	211	42.0	9.9	N 28	21.5	1.4	54.0	52	06 40	07 23	08 02	07 12	08 02	08 38	09 04	
	02	208	36.3		52.8	226	10.9	9.9	N 28	20.1	1.5	53.9	54	06 45	07 30	08 12	07 30	08 19	08 53	09 16	
	03	223	36.2	..	52.5	240	39.8	10.0	N 28	18.6	1.7	53.9	56	06 50	07 38	08 23	07 52	08 40	09 11	09 30	
	04	238	36.1		52.1	255	08.8	10.0	N 28	16.9	1.7	53.9	58	06 56	07 47	08 37	08 20	09 06	09 32	09 46	
	05	253	36.0		51.8	269	37.8	10.0	N 28	15.2	1.9	53.9	S 60	07 03	07 57	08 52	09 00	09 43	10 00	10 06	
	06	268	36.0	N 21	51.4	284	06.8	10.0	N 28	13.3	2.1	53.9									
	07	283	35.9		51.0	298	35.8	10.0	N 28	11.2	2.2	53.9	Lat.	Sun-set	Twilight		Moonset				
	08	298	35.8		50.7	313	04.8	10.1	N 28	09.0	2.3	53.9			Civil	Naut.	12	13	14	15	
	09	313	35.7	..	50.3	327	33.9	10.1	N 28	06.7	2.5	53.9	°	h	h	h	h	h	h	h	
	10	328	35.7		50.0	342	03.0	10.1	N 28	04.2	2.5	53.9	N 72								
	11	343	35.6		49.6	356	32.1	10.2	N 28	01.7	2.8	53.9	N 70								
	12	358	35.5	N 21	49.2	11	01.3	10.1	N 27	58.9	2.8	53.9	68								
	13	13	35.4		48.9	25	30.4	10.2	N 27	56.1	3.0	53.9	66	22 42							23 22
	14	28	35.4		48.5	39	59.6	10.3	N 27	53.1	3.1	53.9	64	22 00							22 49
	15	43	35.3	..	48.1	54	28.9	10.2	N 27	50.0	3.3	53.9	62	21 32	23 33			22 41	22 31	22 24	
	16	58	35.2		47.8	68	58.1	10.3	N 27	46.7	3.4	53.9	60	21 11	22 31		21 22	21 50	22 01	22 05	
	17	73	35.1		47.4	83	27.4	10.4	N 27	43.3	3.5	53.9	N 58	20 54	21 59		20 43	21 19	21 38	21 48	
	18	88	35.1	N 21	47.0	97	56.8	10.3	N 27	39.8	3.7	53.9	56	20 39	21 36	23 36	20 16	20 55	21 19	21 35	
	19	103	35.0		46.7	112	26.1	10.4	N 27	36.1	3.8	53.9	54	20 26	21 17	22 39	19 54	20 36	21 04	21 23	
	20	118	34.9		46.3	126	55.5	10.5	N 27	32.3	3.9	53.9	52	20 15	21 01	22 10	19 37	20 19	20 50	21 12	
	21	133	34.9	..	45.9	141	25.0	10.5	N 27	28.4	4.0	53.9	50	20 06	20 48	21 48	19 22	20 05	20 38	21 03	
	22	148	34.8		45.6	155	54.5	10.5	N 27	24.4	4.2	53.9	45	19 45	20 21	21 09	18 51	19 37	20 13	20 42	
	23	163	34.7		45.2	170	24.0	10.5	N 27	20.2	4.3	53.9									
	14	00	178	34.6	N 21	44.8	184	53.5	10.7	N 27	15.9	4.4	53.9	N 40	19 29	20 01	20 41	18 27	19 14	19 54	20 26
01		193	34.6		44.4	199	23.2	10.6	N 27	11.5	4.6	53.9	35	19 15	19 44	20 20	18 08	18 56	19 37	20 12	
02		208	34.5		44.1	213	52.8	10.7	N 27	06.9	4.7	53.9	30	19 03	19 30	20 03	17 51	18 39	19 22	20 00	
03		223	34.4	..	43.7	228	22.5	10.7	N 27	02.2	4.8	53.9	20	18 43	19 07	19 36	17 22	18 12	18 58	19 39	
04		238	34.4		43.3	242	52.2	10.8	N 27	00.4	5.0	53.9	N 10	18 26	18 48	19 15	16 58	17 49	18 37	19 21	
05		253	34.3		42.9	257	22.0	10.8	N 27	00.4	5.0	53.9	0	18 09	18 31	18 57	16 35	17 27	18 17	19 04	
06		268	34.2	N 21	42.6	271	51.8	10.9	N 26	47.4	5.2	53.9	S 10	17 53	18 16	18 42	16 13	17 05	17 57	18 47	
07		283	34.1		42.2	286	21.7	10.9	N 26	42.2	5.3	53.9	20	17 36	18 00	18 27	15 48	16 41	17 35	18 29	
08		298	34.1		41.8	300	51.6	11.0	N 26	36.9	5.5	53.9	30	17 17	17 43	18 12	15 20	16 13	17 10	18 07	
09		313	34.0	..	41.4	315	21.6	11.0	N 26	31.4	5.6	53.9	35	17 05	17 33	18 04	15 03	15 57	16 55	17 55	
10		328	33.9		41.1	329	51.6	11.0	N 26	25.8	5.6	53.9	40	16 52	17 22	17 56	14 43	15 38	16 38	17 40	
11		343	33.9		40.7	344	21.6	11.2	N 26	20.2	5.9	54.0	45	16 37	17 10	17 47	14 19	15 15	16 17	17 23	
12		358	33.8	N 21	40.3	358	51.8	11.1	N 26	14.3	5.9	54.0	S 50	16 18	16 56	17 36	13 48	14 45	15 50	17 01	
13		13	33.7		39.9	13	21.9	11.2	N 26	08.4	6.1	54.0	52	16 09	16 49	17 32	13 33	14 30	15 37	16 51	
14																					

G.M.T.		ARIES			VENUS -3.7			MARS -1.2			JUPITER -1.4			SATURN +0.6			STARS								
		G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	Name	S.H.A.	Dec.						
d	h	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"		°	'	"					
TUESDAY	15 00	292	40.2		225	18.5	N 19	07.3	53	29.3	S 23	52.2	112	14.9	N 1	09.9	256	28.3	N 11	49.5	Acamar	315	43.5	S 40	25.2
	01	307	42.7		240	18.1		07.7	68	31.5		52.3	127	17.0		09.8	271	30.7		49.6	Achernar	335	51.1	S 57	23.1
	02	322	45.1		255	17.8		08.2	83	33.7		52.4	142	19.2		09.6	286	33.0		49.6	Acrux	173	47.0	S 62	56.1
	03	337	47.6		270	17.4		08.7	98	35.9		52.4	157	21.4		09.5	301	35.3		49.6	Adhara	255	39.0	S 28	55.6
	04	352	50.1		285	17.1		09.2	113	38.1		52.5	172	23.5		09.3	316	37.6		49.7	Aldebaran	291	27.7	N 16	27.1
	05	7	52.5		300	16.7		09.7	128	40.4		52.6	187	25.7		09.2	331	39.9		49.7					
	06	22	55.0		315	16.3	N 19	10.2	143	42.6	S 23	52.6	202	27.8	N 1	09.1	346	42.2	N 11	49.8	Alioth	166	49.5	N 56	07.8
	07	37	57.5		330	16.0		10.7	158	44.8		52.7	217	30.0		08.9	1	44.5		49.8	Alkaid	153	24.7	N 49	28.1
	08	52	59.9		345	15.6		11.2	173	47.0		52.8	232	32.1		08.8	16	46.8		49.8	Al Na'ir	28	24.6	S 47	06.4
	09	68	02.4		0	15.3		11.7	188	49.2		52.8	247	34.3		08.6	31	49.2		49.9	Anilam	276	20.3	S 1	13.0
	10	83	04.8		15	14.9		12.2	203	51.4		52.9	262	36.5		08.5	46	51.5		49.9	Alphard	218	28.9	S 8	31.4
	11	98	07.3		30	14.5		12.6	218	53.6		52.9	277	38.6		08.3	61	53.8		50.0					
	12	113	09.8		45	14.2	N 19	13.1	233	55.8	S 23	53.0	292	40.8	N 1	08.2	76	56.1	N 11	50.0	Alphecca	126	38.8	N 26	49.0
	13	128	12.2		60	13.8		13.6	248	58.0		53.1	307	42.9		08.1	91	58.4		50.0	Alpheratz	358	17.8	N 28	55.2
	14	143	14.7		75	13.5		14.1	264	00.2		53.1	322	45.1		07.9	107	00.7		50.1	Altair	62	40.2	N 8	47.1
	15	158	17.2		90	13.1		14.6	279	02.4		53.2	337	47.2		07.8	122	03.0		50.1	Ankaa	353	48.0	S 42	28.0
	16	173	19.6		105	12.7		15.1	294	04.6		53.3	352	49.4		07.6	137	05.4		50.2	Antares	113	06.7	S 26	22.1
17	188	22.1		120	12.4		15.5	309	06.8		53.3	7	51.5		07.5	152	07.7		50.2						
18	203	24.6		135	12.0	N 19	16.0	324	09.0	S 23	53.4	22	53.7	N 1	07.3	167	10.0	N 11	50.2	Arcturus	146	25.8	N 19	20.5	
19	218	27.0		150	11.6		16.5	339	11.2		53.5	37	55.8		07.2	182	12.3		50.3	Atria	108	38.0	S 68	58.8	
20	233	29.5		165	11.3		17.0	354	13.4		53.5	52	58.0		07.1	197	14.6		50.3	Avior	234	32.4	S 59	24.6	
21	248	32.0		180	10.9		17.5	9	15.6		53.6	68	00.1		06.9	212	16.9		50.4	Bellatrix	279	07.8	N 6	19.6	
22	263	34.4		195	10.5		18.0	24	17.8		53.7	83	02.3		06.8	227	19.2		50.4	Betelgeuse	271	37.4	N 7	24.3	
23	278	36.9		210	10.2		18.4	39	20.0		53.7	98	04.5		06.6	242	21.6		50.4						
WEDNESDAY	16 00	293	39.3		225	09.8	N 19	18.9	54	22.1	S 23	53.8	113	06.6	N 1	06.5	257	23.9	N 11	50.5	Canopus	264	11.4	S 52	40.5
	01	308	41.8		240	09.4		19.4	69	24.3		53.9	128	08.8		06.3	272	26.2		50.5	Capella	281	23.8	N 45	58.2
	02	323	44.3		255	09.1		19.9	84	26.5		53.9	143	10.9		06.2	287	28.5		50.6	Deneb	49	53.7	N 45	10.1
	03	338	46.7		270	08.7		20.3	99	28.7		54.0	158	13.1		06.1	302	30.8		50.6	Denebola	183	07.5	N 14	44.7
	04	353	49.2		285	08.3		20.8	114	30.9		54.1	173	15.2		05.9	317	33.1		50.6	Diphda	349	28.9	S 18	09.0
	05	8	51.7		300	07.9		21.3	129	33.0		54.1	188	17.4		05.8	332	35.5		50.7					
	06	23	54.1		315	07.6	N 19	21.8	144	35.2	S 23	54.2	203	19.5	N 1	05.6	347	37.8	N 11	50.7	Dubhe	194	32.2	N 61	55.2
	07	38	56.6		330	07.2		22.2	159	37.4		54.3	218	21.7		05.5	2	40.1		50.8	Elath	278	54.8	N 28	35.1
	08	53	59.1		345	06.8		22.7	174	39.6		54.3	233	23.8		05.3	17	42.4		50.8	Eltanin	91	01.0	N 51	29.5
	09	69	01.5		0	06.5		23.2	189	41.7		54.4	248	26.0		05.2	32	44.7		50.8	Enif	34	19.4	N 9	44.0
	10	84	04.0		15	06.1		23.7	204	43.9		54.5	263	28.1		05.0	47	47.0		50.9	Fomalhaut	16	00.1	S 29	46.9
	11	99	06.5		30	05.7		24.1	219	46.1		54.5	278	30.3		04.9	62	49.4		50.9					
	12	114	08.9		45	05.3	N 19	24.6	234	48.3	S 23	54.6	293	32.4	N 1	04.8	77	51.7	N 11	50.9	Gacrux	172	38.4	S 56	56.8
	13	129	11.4		60	04.9		25.1	249	50.4		54.7	308	34.6		04.6	92	54.0		51.0	Gienah	176	26.6	S 17	22.4
	14	144	13.8		75	04.6		25.5	264	52.6		54.7	323	36.7		04.5	107	56.3		51.0	Hadar	149	35.2	S 60	14.0
	15	159	16.3		90	04.2		26.0	279	54.8		54.8	338	38.9		04.3	122	58.6		51.1	Hamal	328	38.3	N 23	19.1
	16	174	18.8		105	03.8		26.5	294	56.9		54.9	353	41.0		04.2	138	00.9		51.1	Kaus Aust.	84	27.3	S 34	24.2
17	189	21.2		120	03.4		26.9	309	59.1		54.9	8	43.2		04.0	153	03.3		51.1						
18	204	23.7		135	03.1	N 19	27.4	325	01.2	S 23	55.0	23	45.3	N 1	03.9	168	05.6	N 11	51.2	Kochab	137	17.6	N 74	17.0	
19	219	26.2		150	02.7		27.9	340	03.4		55.1	38	47.5		03.7	183	07.9		51.2	Markab	14	11.2	N 15	02.4	
20	234	28.6		165	02.3		28.3	355	05.5		55.2	53	49.6		03.6	198	10.2		51.3	Menkar	314	49.8	N 3	58.4	
21	249	31.1		180	01.9		28.8	10	07.7		55.2	68	51.8		03.5	213	12.5		51.3	Menkent	148	46.7	S 36	13.5	
22	264	33.6		195	01.5		29.3	25	09.9		55.3	83	53.9		03.3	228	14.8		51.3	Miaplacidus	221	48.0	S 69	35.5	
23	279	36.0		210	01.1		29.7	40	12.0		55.4	98	56.1		03.2	243	17.2		51.4						
THURSDAY	17 00	294	38.5		225	00.8	N 19	30.2	55	14.2	S 23	55.4	113	58.2	N 1	03.0	258	19.5	N 11	51.4	Mirfak	309	28.3	N 49	45.2
	01	309	41.0		240	00.4		30.7	70	16.3		55.5	129	00.4		02.9	273	21.8		51.4	Nunki	76	38.9	S 26	20.3
	02	324	43.4		255	00.0		31.1	85	18.5		55.6	144	02.5		02.7	288	24.1		51.5	Peacock	54	10.5	S 56	50.0
	03	339	45.9		269	59.6		31.6	100	20.6		55.6	159	04.7		02.6	303	26.4		51.5	Pollux	244	08.5	N 28	06.2
	04	354	48.3		284	59.2		32.0	115	22.7		55.7	174	06.8		02.4	318	28.8		51.6	Procyon	245	34.7	N 5	18.4
	05	9	50.8		299	58.8		32.5	130	24.9		55.8	189	09.0		02.3	333	31.1		51.6					
	06	24	53.3		314	58.5	N 19	33.0	145	27.0	S 23	55.9	204	11.1	N 1	02.1	348	33.4	N 11	51.6	Rasalhague	96	36.9	N 12	34.8
	07	39	55.7		329	58.1		33.4	160	29.2		55.9	219	13.3		02.0	3	35.7		51.7	Regulus	208	18.9	N 12	

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise						
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	15	16	17	18		
d	h	°	'	°	'	°	'	°	h	m	h	m	h	m	h	m	h	m
TUESDAY	1500	178 33-0	N 21 35-7	172 57-3	11-8	N 24 55-3	7-3	54-0	N 72	□	□	□	□	□	03 46	06 29		
	01	193 32-9	35-3	187 28-1	11-9	24 48-0	7-5	54-0	N 70	□	□	□	□	□	04 34	06 47		
	02	208 32-8	34-9	201 59-0	11-9	24 40-5	7-6	54-0	68	□	□	□	□	02 32	05 04	07 02		
	03	223 32-8	34-5	216 29-9	12-0	24 32-9	7-6	54-0	66	///	///	01 38	□	03 25	05 26	07 13		
	04	238 32-7	34-1	231 00-9	12-0	24 25-3	7-8	54-0	64	///	///	02 17	01 52	03 57	05 44	07 23		
	05	253 32-6	33-7	245 31-9	12-2	24 17-5	7-9	54-0	62	///	00 55	02 44	02 37	04 21	05 58	07 31		
	06	268 32-6	N 21 33-3	260 03-1	12-1	N 24 09-6	8-0	54-0	60	///	01 47	03 05	03 06	04 40	06 10	07 38		
	07	283 32-5	33-0	274 34-2	12-3	24 01-6	8-1	54-0	N 58	///	02 17	03 22	03 29	04 55	06 21	07 44		
	08	298 32-4	32-6	289 05-5	12-2	23 53-5	8-2	54-0	56	00 50	02 40	03 36	03 47	05 08	06 30	07 49		
	09	313 32-4	32-2	303 36-7	12-4	23 45-3	8-4	54-0	54	01 38	02 58	03 48	04 02	05 20	06 37	07 54		
	10	328 32-3	31-8	318 08-1	12-4	23 36-9	8-4	54-1	52	02 06	03 13	03 59	04 15	05 30	06 45	07 59		
	11	343 32-2	31-4	332 39-5	12-5	23 28-5	8-5	54-1	50	02 28	03 26	04 08	04 27	05 39	06 51	08 03		
	12	358 32-2	N 21 31-0	347 11-0	12-5	N 23 20-0	8-6	54-1	45	03 06	03 52	04 28	04 51	05 58	07 05	08 11		
	13	13 32-1	30-6	1 42-5	12-6	23 11-4	8-8	54-1	N 40	03 32	04 12	04 44	05 10	06 13	07 16	08 18		
	14	28 32-0	30-2	16 14-1	12-6	23 02-6	8-8	54-1	35	03 53	04 29	04 58	05 26	06 26	07 25	08 24		
	15	43 32-0	29-8	30 45-7	12-8	22 53-8	9-0	54-1	30	04 10	04 42	05 09	05 39	06 37	07 34	08 29		
	16	58 31-9	29-4	45 17-5	12-7	22 44-8	9-0	54-1	20	04 36	05 05	05 29	06 03	06 56	07 48	08 39		
	17	73 31-9	29-0	59 49-2	12-9	22 35-8	9-2	54-1	N 10	04 57	05 24	05 46	06 23	07 12	08 00	08 47		
	18	88 31-8	N 21 28-6	74 21-1	12-9	N 22 26-6	9-2	54-1	0	05 14	05 40	06 02	06 42	07 28	08 12	08 54		
	19	103 31-7	28-2	88 53-0	12-9	22 17-4	9-3	54-1	S 10	05 30	05 56	06 18	07 00	07 43	08 23	09 01		
	20	118 31-7	27-8	103 24-9	13-0	22 08-1	9-5	54-1	20	05 44	06 11	06 35	07 20	08 00	08 36	09 09		
	21	133 31-6	27-4	117 56-9	13-1	21 58-6	9-5	54-1	30	05 59	06 28	06 54	07 43	08 18	08 50	09 18		
	22	148 31-5	27-0	132 29-0	13-1	21 49-1	9-6	54-1	35	06 06	06 38	07 05	07 56	08 29	08 58	09 23		
	23	163 31-5	26-6	147 01-1	13-2	21 39-5	9-7	54-1	40	06 14	06 48	07 18	08 12	08 41	09 07	09 29		
24	178 31-4	N 21 26-2	161 33-3	13-3	N 21 29-8	9-9	54-2	45	06 23	07 00	07 33	08 30	08 56	09 17	09 36			
WEDNESDAY	1600	178 31-3	25-8	176 05-6	13-3	N 21 19-9	9-9	54-2	S 50	06 38	07 20	08 00	09 04	09 22	09 36	09 48		
	01	208 31-3	25-4	190 37-9	13-3	21 10-0	10-0	54-2	52	06 43	07 27	08 09	09 16	09 31	09 43	09 52		
	02	223 31-2	25-0	205 10-2	13-5	21 00-0	10-1	54-2	54	06 48	07 35	08 20	09 30	09 42	09 50	09 56		
	03	238 31-2	24-6	219 42-7	13-5	20 49-9	10-1	54-2	56	06 48	07 35	08 20	09 30	09 42	09 50	09 56		
	04	253 31-1	24-2	234 15-2	13-5	20 39-8	10-3	54-2	58	06 53	07 44	08 33	09 46	09 54	09 58	10 01		
	05	268 31-0	N 21 23-8	248 47-7	13-6	N 20 29-5	10-4	54-2	S 60	07 00	07 54	08 47	10 06	10 07	10 07	10 07		
	06	283 31-0	23-4	263 20-3	13-7	20 19-1	10-4	54-2		Sun-set		Twilight		Moonset				
	07	298 30-9	22-9	277 53-0	13-7	20 08-7	10-5	54-2	Lat.	Sun-set	Civil	Naut.	15	16	17	18		
	08	313 30-9	22-5	292 25-7	13-8	19 58-2	10-7	54-2										
	09	328 30-8	22-1	306 58-5	13-8	19 47-5	10-7	54-2	o	h m	h m	h m	h m	h m	h m	h m	h m	
	10	343 30-7	21-7	321 31-3	13-9	19 36-8	10-8	54-3	N 72	□	□	□	□	□	23 48	23 03	22 33	
	11	358 30-7	N 21 21-3	336 04-2	14-0	N 19 26-0	10-8	54-3	N 70	□	□	□	□	□	23 18	22 47	22 25	
	12	13 30-6	20-9	350 37-2	14-0	19 15-2	11-0	54-3	68	□	□	□	□	□	22 53	22 34	22 19	
	13	28 30-6	20-5	5 10-2	14-0	19 04-2	11-0	54-3	66	22 30	///	///	23 22	22 53	22 34	22 19		
	14	43 30-5	20-1	19 43-2	14-1	18 53-2	11-1	54-3	64	21 52	///	///	22 49	22 34	22 23	22 13		
	15	58 30-4	19-7	34 16-3	14-2	18 42-1	11-2	54-3	62	21 26	23 11	///	22 24	22 19	22 13	22 09		
	16	73 30-4	19-2	48 49-5	14-2	18 30-9	11-3	54-3	60	21 06	22 22	///	22 05	22 06	22 05	22 04		
	17	88 30-3	N 21 18-8	63 22-7	14-3	N 18 19-6	11-4	54-3	N 58	20 49	21 53	///	21 48	21 54	21 58	22 00		
	18	103 30-3	18-4	77 56-0	14-3	18 08-2	11-4	54-3	56	20 35	21 30	23 16	21 35	21 45	21 52	21 57		
	19	118 30-2	18-0	92 29-3	14-4	17 56-8	11-5	54-4	54	20 23	21 13	22 31	21 23	21 36	21 46	21 54		
	20	133 30-2	17-6	107 02-7	14-4	17 45-3	11-6	54-4	52	20 12	20 58	22 04	21 12	21 28	21 41	21 51		
	21	148 30-1	17-2	121 36-1	14-5	17 33-7	11-7	54-4	50	20 03	20 45	21 43	21 03	21 21	21 36	21 49		
	22	163 30-0	16-8	136 09-6	14-6	17 22-0	11-7	54-4	45	19 43	20 19	21 05	20 42	21 06	21 26	21 43		
	THURSDAY	1700	178 30-0	N 21 16-3	150 43-2	14-5	N 17 10-3	11-8	54-4	N 40	19 27	19 59	20 39	20 26	20 54	21 17	21 39	
01		193 29-9	15-9	165 16-7	14-7	16 58-5	11-9	54-4	35	19 14	19 43	20 18	20 12	20 43	21 10	21 34		
02		208 29-9	15-5	179 50-4	14-7	16 46-6	12-0	54-4	30	19 02	19 29	20 01	20 00	20 33	21 03	21 31		
03		223 29-8	15-1	194 24-1	14-7	16 34-6	12-0	54-4	20	18 43	19 07	19 35	19 39	20 17	20 52	21 25		
04		238 29-8	14-7	208 57-8	14-8	16 22-6	12-1	54-5	N 10	18 26	18 48	19 15	19 21	20 03	20 42	21 19		
05		253 29-7	14-2	223 31-6	14-8	16 10-5	12-1	54-5	0	18 10	18 32	18 58	19 04	19 49	20 32	21 14		
06		268 29-6	N 21 13-8	238 05-4	14-9	N 15 58-4	12-3	54-5	S 10	17 54	18 16	18 42	18 47	19 36	20 23	21 08		
07		283 29-6	13-4	252 39-3	14-9	15 46-1	12-3	54-5	20	17 37	18 01	18 28	18 29	19 21	20 12	21 03		
08		298 29-5	13-0	267 13-2	15-0	15 33-8	12-3	54-5	30	17 18	17 44	18 13	18 07	19 04	20 01	20 56		
09		313 29-5	12-5	281 47-2	15-0	15 21-5	12-5	54-5	35	17 07	17 35	18 06	17 55	18 55	19 54	20 52		
10		328 29-4	12-1	296 21-2	15-0	15 09-0	12-5	54-5	40	16 54	17 24	17 58	17 40	18 43	19 46	20 48		
11		343 29-4	11-7	310 55-2	15-1	14 56-5	12-5	54-6	45	16 40	17 12	17 49	17 23	18 30	19 37	20 43		
12		358 29-3	N 21 11-3	325 29-3	15-1	N 14 44-0	12-7	54-6	S 50	16 21	16 58	17 39	17 01	18 13	19 25	20 37		
13		13 29-3	10-8	340 03-4	15-2	14 31-3	12-6	54-6	52	16 13	16 52	17 34	16 51	18 06	19 20	20 34		
14		28 29-2	10-4	354 37-6	15-2	14 18-7	12-8	54-6	54	16 03	16 45	17 30	16 39	17 57	19 15	20 31		
15		43 29-2	10-0	9 11-8	15-3	14 05-9	12-8	54-6	56	15 52	16 37	17 25	16 26	17 47	19 08	20 28		
16		58 29-1	09-6	23 46-1	15-3	13 53-1	12-9	54-6	58	15 40	16 28	17 19	16 10	17 36	19 01	20 24		
17		73 29-1	09-1	38 20-4	15-3	13 40-2	12-9	54-6	S 60	15 25	16 19	17 13	15 51	17 23	18 53	20 19		
18		88 29-0	N 21 08-7	52 54-7	15-4	N 13 27-3	13-0	54-7		SUN		MOON						
19		103 29-0	08-3	67 29-1	15-4	13 14-3	13-0	54-7	Day	Eqn. of Time	Mer. Pass.	Mer. Upper	Pass. Lower	Age	Phase			
20		118 28																

G.M.T.		ARIES			VENUS -3-7			MARS -1-2			JUPITER -1-4			SATURN +0-6			STARS					
		G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	Name	S.H.A.	Dec.			
d	h																					
18	00	295	37-6	224 51-4	N19 41-1	56 05-3	S23 57-2	114 49-7	N 0 59-5	259 15-2	N11 52-3						Acamar	315 43-4	S 40 25-2			
	01	310	40-1	239 51-0	41-6	71 07-4	57-3	129 51-9	59-4	274 17-5	52-3						Achernar	335 51-0	S 57 23-1			
	02	325	42-5	254 50-6	42-0	86 09-6	57-4	144 54-0	59-2	289 19-8	52-4						Acrux	173 47-0	S 62 56-1			
	03	340	45-0	269 50-2	42-4	101 11-7	57-4	159 56-2	59-1	304 22-2	52-4						Adhara	255 38-9	S 28 55-6			
	04	355	47-5	284 49-8	42-9	116 13-8	57-5	174 58-3	58-9	319 24-5	52-5						Aldebaran	291 27-7	N 16 27-1			
	05	10	49-9	299 49-4	43-3	131 15-9	57-6	190 00-4	58-8	334 26-8	52-5											
	06	25	52-4	314 49-0	N19 43-8	146 18-0	S23 57-7	205 02-6	N 0 58-6	349 29-1	N11 52-5						Alioth	166 49-5	N 56 07-8			
	07	40	54-9	329 48-6	44-2	161 20-1	57-7	220 04-7	58-5	4 31-4	52-6						Alkaid	153 24-7	N 49 28-1			
	08	55	57-3	344 48-2	44-7	176 22-2	57-8	235 06-9	58-3	19 33-8	52-6						Al Na'ir	28 24-6	S 47 06-1			
	09	70	59-8	359 47-8	45-1	191 24-3	57-9	250 09-0	58-2	34 36-1	52-6						Alnilam	276 20-3	S 1 13-1			
F R I D A Y	10	86	02-3	14 47-4	45-5	206 26-4	58-0	265 11-2	58-0	49 38-4	52-7						Alphard	218 28-9	S 8 31-4			
	11	101	04-7	29 47-0	46-0	221 28-5	58-0	280 13-3	57-9	64 40-7	52-7											
	12	116	07-2	44 46-6	N19 46-4	236 30-6	S23 58-1	295 15-4	N 0 57-7	79 43-1	N11 52-7						Alphecca	126 38-8	N 26 49-0			
	13	131	09-6	59 46-2	46-9	251 32-7	58-2	310 17-6	57-6	94 45-4	52-8						Alpheratz	358 17-8	N 28 55-3			
	14	146	12-1	74 45-8	47-3	266 34-8	58-3	325 19-7	57-4	109 47-7	52-8						Altair	62 40-2	N 8 47-1			
	15	161	14-6	89 45-4	47-7	281 36-9	58-3	340 21-9	57-3	124 50-0	52-9						Ankaa	353 48-0	S 42 28-0			
	16	176	17-0	104 45-0	48-2	296 39-0	58-4	355 24-0	57-1	139 52-4	52-9						Antares	113 06-7	S 26 22-1			
	17	191	19-5	119 44-6	48-6	311 41-1	58-5	10 26-1	57-0	154 54-7	52-9											
	18	206	22-0	134 44-1	N19 49-0	326 43-2	S23 58-6	25 28-3	N 0 56-9	169 57-0	N11 53-0						Arcturus	146 25-8	N 19 20-5			
	19	221	24-4	149 43-7	49-5	341 45-2	58-7	40 30-4	56-7	184 59-3	53-0						Attria	108 38-0	S 68 58-8			
S A T U R D A Y	20	236	26-9	164 43-3	49-9	356 47-3	58-7	55 32-6	56-6	200 01-7	53-0						Avior	234 32-4	S 59 24-6			
	21	251	29-4	179 42-9	50-3	11 49-4	58-8	70 34-7	56-4	215 04-0	53-1						Bellatrix	279 07-8	N 6 19-6			
	22	266	31-8	194 42-5	50-8	26 51-5	58-9	85 36-8	56-3	230 06-3	53-1						Betelgeuse	271 37-4	N 7 24-3			
	23	281	34-3	209 42-1	51-2	41 53-6	59-0	100 39-0	56-1	245 08-6	53-1											
	00	296	36-8	224 41-7	N19 51-6	56 55-7	S23 59-1	115 41-1	N 0 56-0	260 11-0	N11 53-2						Canopus	264 11-4	S 52 40-4			
	01	311	39-2	239 41-3	52-1	71 57-7	59-1	130 43-3	55-8	275 13-3	53-2						Capella	281 23-8	N 45 58-2			
	02	326	41-7	254 40-9	52-5	86 59-8	59-2	145 45-4	55-7	290 15-6	53-2						Deneb	49 53-7	N 45 10-1			
	03	341	44-2	269 40-4	52-9	102 01-9	59-3	160 47-5	55-5	305 18-0	53-3						Denebola	183 07-5	N 14 44-7			
	04	356	46-6	284 40-0	53-3	117 04-0	59-4	175 49-7	55-4	320 20-3	53-3						Diphda	349 28-9	S 18 09-0			
	05	11	49-1	299 39-6	53-8	132 06-0	59-5	190 51-8	55-2	335 22-6	53-3											
S A T U R D A Y	06	26	51-5	314 39-2	N19 54-2	147 08-1	S23 59-5	205 54-0	N 0 55-1	350 24-9	N11 53-4						Dubhe	194 32-2	N 61 55-2			
	07	41	54-0	329 38-8	54-6	162 10-2	59-6	220 56-1	54-9	5 27-3	53-4						Elmath	278 54-8	N 28 35-1			
	08	56	56-5	344 38-4	55-1	177 12-3	59-7	235 58-2	54-8	20 29-6	53-5						Eltanin	91 01-0	N 51 29-5			
	09	71	58-9	359 38-0	55-5	192 14-3	59-8	251 00-4	54-6	35 31-9	53-5						Enif	34 19-3	N 9 44-0			
	10	87	01-4	14 37-5	55-9	207 16-4	59-9	266 02-5	54-5	50 34-2	53-5						Fomalhaut	16 00-1	S 29 46-9			
	11	102	03-9	29 37-1	56-3	222 18-4	23 59-9	281 04-7	54-3	65 36-6	53-6											
	12	117	06-3	44 36-7	N19 56-7	237 20-5	S24 00-0	296 06-8	N 0 54-2	80 38-9	N11 53-6						Gacrux	172 38-4	S 56 56-8			
	13	132	08-8	59 36-3	57-2	252 22-6	00-1	311 08-9	54-0	95 41-2	53-6						Gienah	176 26-6	S 17 22-4			
	14	147	11-3	74 35-9	57-6	267 24-6	00-2	326 11-1	53-9	110 43-6	53-7						Hadar	149 35-2	S 60 14-0			
	15	162	13-7	89 35-5	58-0	282 26-7	00-3	341 13-2	53-7	125 45-9	53-7						Hamal	328 38-3	N 23 19-1			
S A T U R D A Y	16	177	16-2	104 35-0	58-4	297 28-8	00-4	356 15-3	53-6	140 48-2	53-7						Kaus Aust.	84 27-3	S 34 24-2			
	17	192	18-6	119 34-6	58-8	312 30-8	00-4	11 17-5	53-4	155 50-5	53-8											
	18	207	21-1	134 34-2	N19 59-3	327 32-9	S24 00-5	26 19-6	N 0 53-3	170 52-9	N11 53-8						Kochab	137 17-6	N 74 17-0			
	19	222	23-6	149 33-8	19 59-7	342 34-9	00-6	41 21-7	53-1	185 55-2	53-8						Markab	14 11-2	N 15 02-4			
	20	237	26-0	164 33-3	20 00-1	357 37-0	00-7	56 23-9	53-0	200 57-5	53-9						Menkar	314 49-8	N 3 58-4			
	21	252	28-5	179 32-9	00-5	12 39-0	00-8	71 26-0	52-8	215 59-9	53-9						Menkent	148 46-7	S 36 13-5			
	22	267	31-0	194 32-5	00-9	27 41-1	00-9	86 28-2	52-7	231 02-2	53-9						Miaplacidus	221 48-0	S 69 35-5			
	23	282	33-4	209 32-1	01-3	42 43-1	00-9	101 30-3	52-5	246 04-5	54-0											
	00	297	35-9	224 31-7	N20 01-8	57 45-2	S24 01-0	116 32-4	N 0 52-4	261 06-8	N11 54-0						Mirfak	309 28-2	N 49 45-2			
	01	312	38-4	239 31-2	02-2	72 47-2	01-1	131 34-6	52-2	276 09-2	54-0						Nunki	76 38-9	S 26 20-3			
02	327	40-8	254 30-8	02-6	87 49-2	01-2	146 36-7	52-1	291 11-5	54-1						Peacock	54 10-5	S 56 50-1				
03	342	43-3	269 30-4	03-0	102 51-3	01-3	161 38-8	51-9	306 13-8	54-1						Pollux	244 08-5	N 28 06-2				
04	357	45-8	284 29-9	03-4	117 53-3	01-4	176 41-0	51-8	321 16-2	54-1						Procyon	245 34-7	N 5 18-4				
05	12	48-2	299 29-5	03-8	132 55-4	01-4	191 43-1	51-6	336 18-5	54-2												
S U N D A Y	06	27	50-7	314 29-1	N20 04-2	147 57-4	S24 01-5	206 45-2	N 0 51-5	351 20-8	N11 54-2						Rasalhague	96 36-9	N 12 34-8			
	07	42	53-1	329 28-7	04-6	162 59-4	01-6	221 47-4	51-3	6 23-2	54-2						Regulus	208 18-9	N 12 07-2			
	08	57	55-6	344 28-2	05-0	178 01-5	01-7	236 49-5	51-2	21 25-5	54-3					Rigel	281 44-1	S 8 13-9				
	09	72	58-1	359 27-8	05-4	193 03-5	01-8	251 51-6	51-0	36 27-8	54-3						Rigel Kent.	140 37-1	S 60 42-9			
	10	88	00-5	14 27-4	05-9	208 05-5	01-9	266 53-8	50-9	51 30-1	54-3						Sabik	102 50-3	S 15 41-5			
	11	103	03-0	29 26-9	06-3	223 07-6	02-0	281 55-9	50-7	66 32-5	54-4											
	12	118	05-5	44 26-5	N20 06-7	238 09-6	S24 02-0	296 58-0	N 0 50-6	81 34-8	N11 54-4						Schedar	350 18-5	N 56 22-0			
	13	133	07-9	59 26-1	07-1	253 11-6	02-1	312 00-2	50-4	96 37-1	54-4						Shaula	97 06-6	S 37 05-2			
	14	148	10-4	74 25-6	07-5	268 13-7	02-2	327 02-3	50-3	111-39-5	54-5						Sirius	259 03-3	S 16 40-2			
	15	163	12-9	89 25-2	07-9	283 15-7	02-3	342 04-4	50-1	126 41-8	54-5						Spica	159 06-2	N 11 00-2			
S U N D A Y	16	178	15-3	104 24-8	08-3	298 17-7	02-4	357 06-6	50-0	141 44-1	54-5						Suhail	223 17-4	S 43 18-5			
	17	193	17-8	119 24-3	08-7	313 19-7	02-5	12 08-7	49-8	156 46-5	54-6											
	18	208	20-3	134 23-9	N20 09-1	328 21-8	S24 02-6	27 108 N	0 49-6	171 48-8	N11 54-6						Vega	81 01-0	N 38 45-2			
	19	223	22-7	149 23-5	09-5	343 23-8	02-7	42 13-0	49-5	186 51-1	54-6						Zuben'ubi	137 42-0	N 15 55-1			
	20	238	25-2	164 23-0	09-9	358 25-8	02-7	57 15-1	49-3	201 53-5	54-7											
	21	253	27-6	179 22-6	10-3	13 27-8	02-8	72 17-2	49-2	216 55-8	54-7											
	22	268	30-1	194 22-2	10-7	28 29-8	02-9	87 19-4	49-0	231 58-1	54-7						Venus	288 04-9	9 01			
	23	283	32-6	209 21-7	11-1	43 31-8	03-0	102 21-5	48-9	247 00-5	54-8						Mars	120 18-9	20 10			
	Mer. Pass. 4 12-9																	v -0-4		d 0-4	v 2-1	

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise					
		G.H.A.	Dec.	G.H.A.	°	Dec.	d		H.P.	Naut.		Civil	18	19	20	21	
d	h																
18	00	178 28.7	N 21 06.1	140 21.5	15.6	N 12 08.5	13.3	54.8	N 72	□	□	□	06 29	08 38	10 42	12 54	
	01	193 28.6	05.7	154 56.1	15.6	11 55.2	13.4	54.8	N 70	□	□	□	06 47	08 45	10 39	12 40	
	02	208 28.6	05.2	169 30.7	15.6	11 41.8	13.4	54.8	68			00 42	07 02	08 50	10 37	12 29	
	03	223 28.5	04.8	184 05.3	15.7	11 28.4	13.5	54.8	66			01 51	07 13	08 54	10 35	12 20	
	04	238 28.5	04.4	198 40.0	15.7	11 14.9	13.5	54.8	64			02 26	07 23	08 58	10 33	12 12	
19	05	253 28.4	03.9	213 14.7	15.7	11 01.4	13.6	54.8	62		01 14	02 51	07 31	09 01	10 32	12 06	
	06	268 28.4	N 21 03.5	227 49.4	15.7	N 10 47.8	13.6	54.9	60		01 57	03 11	07 38	09 04	10 31	12 00	
	07	283 28.3	03.1	242 24.1	15.8	10 34.2	13.7	54.9	N 58		02 25	03 27	07 44	09 06	10 29	11 55	
	08	298 28.3	02.6	256 58.9	15.8	10 20.5	13.7	54.9	56	01 07	02 46	03 40	07 49	09 09	10 28	11 51	
	09	313 28.2	02.2	271 33.7	15.8	10 06.8	13.8	54.9	54	01 47	03 03	03 52	07 54	09 11	10 28	11 47	
20	10	328 28.2	01.7	286 08.5	15.9	9 53.0	13.8	54.9	52	02 13	03 18	04 03	07 59	09 12	10 27	11 44	
	11	343 28.2	01.3	300 43.4	15.9	9 39.2	13.9	54.9	50	02 33	03 30	04 12	08 03	09 14	10 26	11 40	
	12	358 28.1	N 21 00.9	315 18.3	15.8	N 9 25.3	13.9	55.0	45	03 10	03 55	04 31	08 11	09 17	10 24	11 34	
	13	13 28.1	00.4	329 53.1	16.0	9 11.4	14.0	55.0	N 40	03 36	04 15	04 47	08 18	09 20	10 23	11 28	
	14	28 28.0	21 00.0	344 28.1	15.9	8 57.4	14.0	55.0	35	03 56	04 31	05 00	08 24	09 23	10 22	11 23	
21	15	43 28.0	20 59.5	359 03.0	15.9	8 43.4	14.0	55.0	30	04 12	04 44	05 11	08 29	09 25	10 21	11 19	
	16	58 27.9	59.1	13 37.9	16.0	8 29.4	14.1	55.0	20	04 38	05 06	05 30	08 39	09 29	10 19	11 11	
	17	73 27.9	58.7	28 12.9	16.0	8 15.3	14.1	55.1	N 10	04 58	05 25	05 47	08 47	09 32	10 18	11 05	
	18	88 27.8	N 20 58.2	42 47.9	16.0	N 8 01.2	14.1	55.1	0	05 15	05 41	06 03	08 54	09 35	10 16	10 59	
	19	103 27.8	57.8	57 22.9	16.0	7 47.1	14.2	55.1	S 10	05 30	05 56	06 18	09 01	09 38	10 15	10 53	
22	20	118 27.7	57.3	71 57.9	16.0	7 32.9	14.3	55.1	20	05 44	06 11	06 34	09 09	09 42	10 14	10 47	
	21	133 27.7	56.9	86 32.9	16.0	7 18.6	14.2	55.1	30	05 58	06 27	06 53	09 18	09 45	10 12	10 40	
	22	148 27.6	56.4	101 07.9	16.1	7 04.4	14.3	55.2	35	06 05	06 36	07 03	09 23	09 47	10 11	10 36	
	23	163 27.6	56.0	115 43.0	16.0	6 50.1	14.4	55.2	40	06 13	06 46	07 16	09 29	09 50	10 10	10 32	
									45	06 22	06 58	07 30	09 36	09 53	10 09	10 26	
23	00	178 27.5	N 20 55.5	130 18.0	16.1	N 6 35.7	14.4	55.2	S 50	06 31	07 11	07 48	09 44	09 56	10 08	10 20	
	01	193 27.5	55.1	144 53.1	16.0	6 21.3	14.4	55.2	52	06 35	07 18	07 57	09 48	09 58	10 07	10 17	
	02	208 27.5	54.6	159 28.1	16.1	6 06.9	14.4	55.2	54	06 40	07 24	08 06	09 52	09 59	10 06	10 14	
	03	223 27.4	54.2	174 03.2	16.1	5 52.5	14.5	55.3	56	06 45	07 32	08 16	09 56	10 01	10 06	10 11	
	04	238 27.4	53.7	188 38.3	16.1	5 38.0	14.5	55.3	58	06 50	07 40	08 28	10 01	10 03	10 05	10 07	
24	05	253 27.3	53.3	203 13.4	16.0	5 23.5	14.5	55.3	S 60	06 56	07 50	08 42	10 07	10 05	10 04	10 03	
	06	268 27.3	N 20 52.8	217 48.4	16.1	N 5 09.0	14.6	55.3									
	07	283 27.2	52.4	232 23.5	16.1	4 54.4	14.6	55.4									
	08	298 27.2	51.9	246 58.6	16.1	4 39.8	14.6	55.4									
	09	313 27.1	51.5	261 33.7	16.1	4 25.2	14.7	55.4									
25	10	328 27.1	51.0	276 08.8	16.0	4 10.5	14.7	55.4									
	11	343 27.1	50.6	290 43.8	16.1	3 55.8	14.7	55.4									
	12	358 27.0	N 20 50.1	305 18.9	16.1	N 3 41.1	14.7	55.5	N 72	□	□	□	22 43	22 09	21 35	20 55	
	13	13 27.0	49.7	319 54.0	16.0	3 26.4	14.8	55.5	N 70	□	□	□	22 33	22 07	21 41	21 12	
	14	28 26.9	49.2	334 29.0	16.1	3 11.6	14.7	55.5	68	23 19			22 25	22 06	21 47	21 25	
26	15	43 26.9	48.7	349 04.1	16.0	2 56.9	14.8	55.5	66	22 17			22 19	22 05	21 51	21 36	
	16	58 26.8	48.3	3 39.1	16.1	2 42.1	14.9	55.6	64	21 44			22 13	22 04	21 55	21 45	
	17	73 26.8	47.8	18 14.2	16.0	2 27.2	14.8	55.6	62	21 19	22 54		22 09	22 04	21 59	21 53	
	18	88 26.8	N 20 47.4	32 49.2	16.0	N 2 12.4	14.9	55.6	60	21 00	22 13		22 04	22 03	22 02	22 00	
	19	103 26.7	46.9	47 24.2	16.0	1 57.5	14.9	55.6	N 58	20 44	21 46		22 00	22 02	22 04	22 06	
27	20	118 26.7	46.5	61 59.2	16.0	1 42.6	14.9	55.7	56	20 31	21 25	23 01	21 57	22 02	22 07	22 12	
	21	133 26.6	46.0	76 34.2	16.0	1 27.7	14.9	55.7	54	20 19	21 08	22 23	21 54	22 01	22 09	22 17	
	22	148 26.6	45.5	91 09.2	15.9	1 12.8	14.9	55.7	52	20 09	20 54	21 58	21 51	22 01	22 11	22 21	
	23	163 26.6	45.1	105 44.1	15.9	0 57.9	15.0	55.7	50	20 00	20 41	21 38	21 49	22 01	22 12	22 25	
									45	19 41	20 16	21 02	21 43	22 00	22 16	22 34	
28	00	178 26.5	N 20 44.6	120 19.0	15.9	N 0 42.9	15.0	55.8	N 40	19 25	19 57	20 36	21 39	21 59	22 19	22 42	
	01	193 26.5	44.1	134 53.9	15.9	0 27.9	14.9	55.8	35	19 12	19 41	20 16	21 34	21 58	22 22	22 48	
	02	208 26.4	43.7	149 28.8	15.9	N 0 13.0	15.0	55.8	30	19 01	19 28	20 00	21 31	21 58	22 25	22 54	
	03	223 26.4	43.2	164 03.7	15.8	S 0 02.0	15.1	55.8	20	18 42	19 06	19 34	21 25	21 57	22 29	23 04	
	04	238 26.4	42.8	178 38.5	15.9	0 17.1	15.0	55.9	N 10	18 25	18 48	19 14	21 19	21 56	22 33	23 12	
29	05	253 26.3	42.3	193 13.4	15.7	0 32.1	15.0	55.9	0	18 10	18 32	18 58	21 14	21 55	22 37	23 20	
	06	268 26.3	N 20 41.8	207 48.1	15.8	S 0 47.1	15.1	55.9	S 10	17 55	18 17	18 43	21 08	21 54	22 40	23 29	
	07	283 26.3	41.4	222 22.9	15.7	1 02.2	15.0	55.9	20	17 38	18 02	18 29	21 03	21 53	22 44	23 37	
	08	298 26.2	40.9	236 57.6	15.7	1 17.2	15.1	56.0	30	17 20	17 46	18 15	20 56	21 52	22 48	23 47	
	09	313 26.2	40.4	251 32.3	15.7	1 32.3	15.1	56.0	35	17 09	17 37	18 08	20 52	21 51	22 51	23 53	
30	10	328 26.1	40.0	266 07.0	15.7	1 47.4	15.0	56.0	40	16 57	17 27	18 00	20 48	21 50	22 54	24 00	
	11	343 26.1	39.5	280 41.7	15.6	2 02.4	15.1	56.0	45	16 43	17 15	17 51	20 43	21 49	22 57	24 08	
	12	358 26.1	N 20 39.0	295 16.3	15.5	S 2 17.5	15.1	56.1	S 50	16 25	17 02	17 42	20 37	21 48	23 01	24 17	
	13	13 26.0	38.5	309 50.8	15.6	2 32.6	15.1	56.1	52	16 16	16						

G.M.T.		ARIES		VENUS -3-7		MARS -1-1		JUPITER -1-4		SATURN +0-6		STARS		
		G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.	
d	h	°	'	°	°	'	°	'	°	'		°	'	
MONDAY	21 00	298 35-0	224 21-3	N 20 11-5	58 33-8	S 24 03-1	117 23-6	N 0 48-7	262 02-8	N 11 54-8	Acamar	315 43-4	S 40 25-2	
	01	313 37-5	239 20-9	11-9	73 35-9	03-2	132 25-8	48-6	277 05-1	54-8	Achernar	335 51-0	S 57 23-1	
	02	328 40-0	254 20-4	12-3	88 37-9	03-3	147 27-9	48-4	292 07-5	54-9	Acrux	173 47-1	S 62 56-1	
	03	343 42-4	269 20-0	12-7	103 39-9	03-4	162 30-0	48-3	307 09-8	54-9	Adhara	255 38-9	S 28 55-6	
	04	358 44-9	284 19-5	13-0	118 41-9	03-4	177 32-1	48-1	322 12-1	54-9	Aldebaran	291 27-7	N 16 27-1	
	05	13 47-4	299 19-1	13-4	133 43-9	03-5	192 34-3	48-0	337 14-5	55-0				
	06	28 49-8	314 18-6	N 20 13-8	148 45-9	S 24 03-6	207 36-4	N 0 47-8	352 16-8	N 11 55-0	Alioth	166 49-5	N 56 07-7	
	07	43 52-3	329 18-2	14-2	163 47-9	03-7	222 38-5	47-7	7 19-1	55-0	Alkaid	153 24-7	N 49 28-1	
	08	58 54-8	344 17-8	14-6	178 49-9	03-8	237 40-7	47-5	22 21-5	55-1	Al Na'ir	28 24-6	S 47 06-4	
	09	73 57-2	359 17-3	15-0	193 51-9	03-9	252 42-8	47-4	37 23-8	55-1	Anil	276 20-2	S 1 13-1	
	10	88 59-7	14 16-9	15-4	208 53-9	04-0	267 44-9	47-2	52 26-2	55-1	Alphard	218 28-9	S 8 31-4	
	11	104 02-1	29 16-4	15-8	223 55-9	04-1	282 47-1	47-1	67 28-5	55-2				
	12	119 04-6	44 16-0	N 20 16-2	238 57-9	S 24 04-2	297 49-2	N 0 46-9	82 30-8	N 11 55-2	Alphecca	126 38-8	N 26 49-0	
	13	134 07-1	59 15-5	16-6	253 59-9	04-3	312 51-3	46-8	97 33-2	55-2	Alpheratz	358 17-7	N 28 55-3	
	14	149 09-5	74 15-1	16-9	269 01-9	04-3	327 53-4	46-6	112 35-5	55-3	Altair	62 40-2	N 8 47-2	
	15	164 12-0	89 14-7	17-3	284 03-9	04-4	342 55-6	46-4	127 37-8	55-3	Ankaa	353 47-9	S 42 28-0	
	16	179 14-5	104 14-2	17-7	299 05-9	04-5	357 57-7	46-3	142 40-2	55-3	Antares	113 06-7	S 26 22-1	
	17	194 16-9	119 13-8	18-1	314 07-8	04-6	12 59-8	46-1	157 42-5	55-4				
	18	209 19-4	134 13-3	N 20 18-5	329 09-8	S 24 04-7	28 02-0	N 0 46-0	172 44-8	N 11 55-4	Arcturus	146 25-8	N 19 20-5	
	19	224 21-9	149 12-9	18-9	344 11-8	04-8	43 04-1	45-8	187 47-2	55-4	Atria	108 38-0	S 68 58-8	
	20	239 24-3	164 12-4	19-2	359 13-8	04-9	58 06-2	45-7	202 49-5	55-5	Avior	234 32-4	S 59 24-5	
	21	254 26-8	179 12-0	19-6	14 15-8	05-0	73 08-3	45-5	217 51-8	55-5	Bellatrix	279 07-8	N 6 19-6	
	22	269 29-2	194 11-5	20-0	29 17-8	05-1	88 10-5	45-4	232 54-2	55-5	Betelgeuse	271 37-4	N 7 24-3	
23	284 31-7	209 11-1	20-4	44 19-7	05-2	103 12-6	45-2	247 56-5	55-5					
TUESDAY	22 00	299 34-2	224 10-6	N 20 20-8	59 21-7	S 24 05-3	118 14-7	N 0 45-1	262 58-9	N 11 55-6	Canopus	264 11-4	S 52 40-4	
	01	314 36-6	239 10-2	21-1	74 23-7	05-4	133 16-8	44-9	278 01-2	55-6	Capella	281 23-8	N 45 58-1	
	02	329 39-1	254 09-7	21-5	89 25-7	05-4	148 19-0	44-8	293 03-5	55-6	Deneb	49 53-7	N 45 10-1	
	03	344 41-6	269 09-3	21-9	104 27-6	05-5	163 21-1	44-6	308 05-9	55-7	Denebola	183 07-5	N 14 44-7	
	04	359 44-0	284 08-8	22-3	119 29-6	05-6	178 23-2	44-5	323 08-2	55-7	Diphda	349 28-9	S 18 09-0	
	05	14 46-5	299 08-4	22-6	134 31-6	05-7	193 25-4	44-3	338 10-5	55-7				
	06	29 49-0	314 07-9	N 20 23-0	149 33-6	S 24 05-8	208 27-5	N 0 44-1	353 12-9	N 11 55-8	Dubhe	194 32-2	N 61 55-2	
	07	44 51-4	329 07-4	23-4	164 35-5	05-9	223 29-6	44-0	8 15-2	55-8	Elnath	278 54-8	N 28 35-1	
	08	59 53-9	344 07-0	23-8	179 37-5	06-0	238 31-7	43-8	23 17-6	55-8	Eltanin	91 01-0	N 51 29-5	
	09	74 56-3	359 06-5	24-1	194 39-5	06-1	253 33-9	43-7	38 19-9	55-9	Enif	34 19-3	N 9 44-4	
	10	89 58-8	14 06-1	24-5	209 41-4	06-2	268 36-0	43-5	53 22-2	55-9	Fomalhaut	16 00-0	S 29 46-9	
	11	105 01-3	29 05-6	24-9	224 43-4	06-3	283 38-1	43-4	68 24-6	55-9				
	12	120 03-7	44 05-2	N 20 25-2	239 45-4	S 24 06-4	298 40-2	N 0 43-2	83 26-9	N 11 56-0	Gacrux	172 38-4	S 56 56-8	
	13	135 06-2	59 04-7	25-6	254 47-3	06-5	313 42-4	43-1	98 29-3	56-0	Gienah	176 26-6	S 17 22-4	
	14	150 08-7	74 04-2	26-0	269 49-3	06-6	328 44-5	42-9	113 31-6	56-0	Hadar	149 35-3	S 60 14-0	
	15	165 11-1	89 03-8	26-4	284 51-2	06-7	343 46-6	42-8	128 33-9	56-0	Hamal	328 38-2	N 23 19-2	
	16	180 13-6	104 03-3	26-7	299 53-2	06-8	358 48-7	42-6	143 36-3	56-1	Kaus Aust.	84 27-3	S 34 24-2	
	17	195 16-1	119 02-9	27-1	314 55-2	06-9	13 50-9	42-4	158 38-6	56-1				
	18	210 18-5	134 02-4	N 20 27-4	329 57-1	S 24 06-9	28 53-0	N 0 42-3	173 41-0	N 11 56-1	Kochab	137 17-7	N 74 17-0	
	19	225 21-0	149 01-9	27-8	344 59-1	07-0	43 55-1	42-1	188 43-3	56-2	Markab	14 11-1	N 15 02-4	
	20	240 23-5	164 01-5	28-2	0 01-0	07-1	58 57-2	42-0	203 45-6	56-2	Menkar	314 49-8	N 3 58-4	
	21	255 25-9	179 01-0	28-5	15 03-0	07-2	73 59-4	41-8	218 48-0	56-2	Menkent	148 46-8	S 36 13-5	
	22	270 28-4	194 00-6	28-9	30 04-9	07-3	89 01-5	41-7	233 50-3	56-3	Miaplacidus	221 48-0	S 69 35-5	
23	285 30-8	209 00-1	29-3	45 06-9	07-4	104 03-6	41-5	248 52-7	56-3					
WEDNESDAY	23 00	300 33-3	223 59-6	N 20 29-6	60 08-8	S 24 07-5	119 05-7	N 0 41-4	263 55-0	N 11 56-3	Mirfak	309 28-2	N 49 45-2	
	01	315 35-8	238 59-2	30-0	75 10-8	07-6	134 07-9	41-2	278 57-3	56-3	Nunki	76 38-9	S 26 20-3	
	02	330 38-2	253 58-7	30-3	90 12-7	07-7	149 10-0	41-0	293 59-7	56-4	Peacock	54 10-5	S 56 50-1	
	03	345 40-7	268 58-2	30-7	105 14-6	07-8	164 12-1	40-9	309 02-0	56-4	Pollux	244 08-5	N 28 06-2	
	04	0 43-2	283 57-8	31-1	120 16-6	07-9	179 14-2	40-7	324 04-4	56-4	Procyon	245 34-6	N 5 18-4	
	05	15 45-6	298 57-3	31-4	135 18-5	08-0	194 16-3	40-6	339 06-7	56-5				
	06	30 48-1	313 56-8	N 20 31-8	150 20-5	S 24 08-1	209 18-5	N 0 40-4	354 09-0	N 11 56-5	Rasalhague	96 36-9	N 12 34-8	
	07	45 50-6	328 56-4	32-1	165 22-4	08-2	224 20-6	40-3	9 11-4	56-5	Regulus	208 18-9	N 12 07-2	
	08	60 53-0	343 55-9	32-5	180 24-3	08-3	239 22-7	40-1	24 13-7	56-5	Rigel	281 44-1	S 8 13-9	
	09	75 55-5	358 55-4	32-8	195 26-3	08-4	254 24-8	40-0	39 16-1	56-6	Rigel Kent.	140 37-1	S 60 42-9	
	10	90 58-0	13 55-0	33-2	210 28-2	08-5	269 27-0	39-8	54 18-4	56-6	Sabik	102 50-3	S 15 41-5	
	11	106 00-4	28 54-5	33-5	225 30-1	08-6	284 29-1	39-6	69 20-8	56-6				
	12	121 02-9	43 54-0	N 20 33-9	240 32-1	S 24 08-7	299 31-2	N 0 39-5	84 23-1	N 11 56-7	Schedar	350 18-5	N 56 22-1	
	13	136 05-3	58 53-6	34-2	255 34-0	08-8	314 33-3	39-3	99 25-4	56-7	Shaula	97 06-6	S 37 05-2	
	14	151 07-8	73 53-1	34-6	270 35-9	08-9	329 35-4	39-2	114 27-8	56-7	Sirius	259 03-3	S 16 40-2	
	15	166 10-3	88 52-6	34-9	285 37-8	09-0	344 37-6	39-0	129 30-1	56-8	Spica	159 06-2	S 11 00-2	
	16	181 12-7	103 52-1	35-3	300 39-8	09-1	359 39-7	38-9	144 32-5	56-8	Suhail	223 17-4	S 43 18-5	
	17	196 15-2	118 51-7	35-6	315 41-7	09-2	14 41-8	38-7	159 34-8	56-8				
	18	211 17-7	133 51-2	N 20 36-0	330 43-6	S 24 09-3	29 43-9	N 0 38-5	174 37-2	N 11 56-8	Vega	81 01-0	N 38 45-3	
	19	226 20-1	148 50-7	36-3	345 45-5	09-4	44 46-0	38-4	189 39-5	56-9	Zuben'ubi	137 42-1	S 15 55-1	
	20	241 22-6	163 50-3	36-7	0 47-5	09-5	59 48-2	38-2	204 41-8	56-9				
	21	256 25-1	178 49-8	37-0	15 49-4	09-6	74 50-3	38-1	219 44-2	56-9				
	22	271 27-5	193 49-3	37-4	30 51-3	09-7	89 52-4	37-9	234 46-5	57-0	Venus	284 36-4	Mer. Pass. 9 04	
23	286 30-0	208 48-8	37-7	45 53-2	09-8	104 54-5	37-8	249 48-9	57-0	Mars	119 47-5	20 00		
											Jupiter	178 40-5	16 05	
											Saturn	323 24-7	6 27	
Mer. Pass.		4 01-1	v -0-5	d 0-4	v 2-0	d 0-1	v 2-1	d 0-2	v 2-3	d 0-0				

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise									
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	21	22	23	24					
d	h	°	'	°	'	°	'	'	h	m	h	m	h	m	h	m	h	m			
21	00	178	25.7	N 20	33.3	110	08.4	15.0	S	5	18.7	15.1	56.4	N 72	□	□	□	12 54	15 37	■	■
	01	193	25.6		32.8	124	42.4	15.0		5	33.8	15.0	56.4	N 70	□	□	□	12 40	15 00	■	■
	02	208	25.6		32.4	139	16.4	14.9		5	48.8	15.1	56.5	68	///	///	01 12	12 29	14 34	17 22	■
	03	223	25.6	..	31.9	153	50.3	14.9		6	03.9	15.0	56.5	66	///	///	02 04	12 20	14 15	16 32	■
	04	238	25.5		31.4	168	24.2	14.8		6	18.9	15.1	56.5	64	///	///	02 36	12 12	13 59	16 01	18 39
05	253	25.5		30.9	182	58.0	14.8		6	34.0	15.0	56.6	62	///	01 29	02 59	12 06	13 46	15 38	17 45	
06													60	///	02 07	03 17	12 00	13 36	15 19	17 13	
MONDAY	07	268	25.5	N 20	30.5	197	31.8	14.7	S	6	49.0	15.0	56.6	N 58	///	02 32	03 32	11 55	13 26	15 04	16 49
	08	283	25.4		30.0	212	05.5	14.7		7	04.0	15.0	56.6	56	01 22	02 52	03 45	11 51	13 18	14 51	16 30
	09	298	25.4		29.5	226	39.2	14.5		7	19.0	15.0	56.7	54	01 56	03 09	03 57	11 47	13 11	14 40	16 14
	10	313	25.4	..	29.0	241	12.7	14.5		7	34.0	15.0	56.7	52	02 20	03 23	04 07	11 44	13 04	14 30	16 00
	11	328	25.3		28.5	255	46.2	14.5		7	49.0	15.0	56.7	50	02 39	03 34	04 15	11 40	12 59	14 21	15 48
TUESDAY	12	343	25.3		28.0	270	19.7	14.4		8	04.0	14.9	56.7	45	03 14	03 59	04 34	11 34	12 46	14 03	15 23
	13	358	25.3	N 20	27.6	284	53.1	14.3	S	8	18.9	14.9	56.8	N 40	03 39	04 18	04 49	11 28	12 36	13 48	15 04
	14	13	25.2		27.1	299	26.4	14.2		8	33.8	14.9	56.8	35	03 58	04 33	05 02	11 23	12 27	13 35	14 47
	15	28	25.2		26.6	313	59.6	14.2		8	48.7	14.9	56.8	30	04 14	04 46	05 13	11 19	12 20	13 24	14 33
	16	43	25.2	..	26.1	328	32.8	14.1		9	03.6	14.9	56.9	20	04 39	05 08	05 32	11 11	12 07	13 06	14 09
WEDNESDAY	17	58	25.2		25.6	343	05.9	14.0		9	18.5	14.8	56.9	N 10	04 59	05 25	05 48	11 05	11 55	12 50	13 49
	18	73	25.1		25.1	357	38.9	14.0		9	33.3	14.8	56.9	0	05 15	05 41	06 03	10 59	11 45	12 35	13 30
	19	88	25.1	N 20	24.6	12	11.9	13.8	S	9	48.1	14.8	57.0	S 10	05 30	05 55	06 18	10 53	11 34	12 20	13 11
	20	103	25.1		24.2	26	44.7	13.8		10	02.9	14.7	57.0	20	05 43	06 10	06 34	10 47	11 23	12 04	12 51
	21	118	25.0		23.7	41	17.5	13.8		10	17.6	14.8	57.0	30	05 57	06 26	06 51	10 40	11 11	11 46	12 28
THURSDAY	22	133	25.0	..	23.2	55	50.3	13.6		10	32.4	14.6	57.1	35	06 04	06 35	07 02	10 36	11 04	11 35	12 14
	23	148	25.0		22.7	70	22.9	13.5		10	47.0	14.7	57.1	40	06 11	06 44	07 14	10 32	10 55	11 24	11 59
	24	163	25.0		22.2	84	55.4	13.5		11	01.7	14.6	57.1	45	06 19	06 55	07 28	10 26	10 46	11 10	11 41
	25	178	24.9	N 20	21.7	99	27.9	13.4	S	11	16.3	14.6	57.2	S 50	06 28	07 08	07 45	10 20	10 35	10 53	11 18
	26	193	24.9		21.2	114	00.3	13.3		11	30.9	14.6	57.2	52	06 32	07 14	07 53	10 17	10 29	10 45	11 07
FRIDAY	27	208	24.9		20.7	128	32.6	13.2		11	45.5	14.5	57.2	54	06 37	07 21	08 02	10 14	10 24	10 36	10 55
	28	223	24.8	..	20.2	143	04.8	13.1		12	00.0	14.5	57.3	56	06 41	07 28	08 12	10 11	10 17	10 27	10 41
	29	238	24.8		19.7	157	36.9	13.0		12	14.5	14.5	57.3	58	06 46	07 36	08 23	10 07	10 10	10 16	10 25
	30	253	24.8		19.2	172	08.9	13.0		12	29.0	14.4	57.3	S 60	06 52	07 45	08 37	10 03	10 02	10 03	10 06
	31	268	24.8	N 20	18.7	186	40.9	12.8	S	12	43.4	14.4	57.4								
SATURDAY	01	283	24.7		18.3	201	12.7	12.8		12	57.8	14.3	57.4	Lat.	Sun-set	Twilight		Moonset			
	02	298	24.7		17.8	215	44.5	12.6		13	12.1	14.3	57.4			Civil	Naut.	21	22	23	24
	03	313	24.7	..	17.3	230	16.1	12.5		13	26.4	14.2	57.5		h m	h m	h m	h m	h m	h m	h m
	04	328	24.7		16.8	244	47.6	12.5		13	40.6	14.2	57.5	N 72	□	□	□	20 55	19 49	■	■
	05	343	24.6		16.3	259	19.1	12.3		13	54.8	14.1	57.5	N 70	□	□	□	21 12	20 28	■	■
SUNDAY	06	358	24.6	N 20	15.8	273	50.4	12.3	S	14	08.9	14.1	57.6	68	22 54	///	///	21 12	20 28	19 53	■
	07	13	24.6		15.3	288	21.7	12.1		14	23.0	14.1	57.6	66	22 05	///	///	21 25	20 56	20 45	■
	08	28	24.6		14.8	302	52.8	12.1		14	37.1	14.0	57.6	64	21 35	///	///	21 36	21 17	20 45	■
	09	43	24.6	..	14.3	317	23.9	11.9		14	51.1	13.9	57.7	62	21 12	22 39	///	21 45	21 34	21 17	20 37
	10	58	24.5		13.8	331	54.8	11.8		15	05.0	13.9	57.7	60	20 54	22 03	///	21 53	21 48	21 41	21 32
MONDAY	11	73	24.5		13.3	346	25.6	11.8		15	18.9	13.8	57.7	N 58	20 39	21 38	///	22 00	22 00	22 00	22 05
	12	88	24.5	N 20	12.8	0	56.4	11.6	S	15	32.7	13.8	57.8	56	20 26	21 19	22 47	22 06	22 10	22 16	22 29
	13	103	24.5		12.3	15	27.0	11.5		15	46.5	13.7	57.8	54	20 15	21 03	22 14	22 12	22 19	22 30	22 49
	14	118	24.4		11.8	29	57.5	11.3		16	00.2	13.6	57.9	52	20 05	20 49	21 51	22 17	22 27	22 42	23 05
	15	133	24.4	..	11.3	44	27.8	11.3		16	13.8	13.6	57.9	50	19 57	20 37	21 32	22 21	22 35	22 53	23 19
TUESDAY	16	148	24.4		10.8	58	58.1	11.2		16	27.4	13.5	57.9	45	19 38	20 13	20 58	22 25	22 41	23 02	23 32
	17	163	24.4		10.3	73	28.3	11.0		16	40.9	13.4	58.0	40	19 23	19 54	20 33	22 34	22 55	23 22	23 58
	18	178	24.4	N 20	09.7	87	58.3	10.9	S	16	54.3	13.4	58.0	N 40	19 23	19 54	20 33	22 42	23 07	23 38	24 18
	19	193	24.3		09.2	102	28.2	10.8		17	07.7	13.3	58.0	35	19 11	19 39	20 14	22 48	23 17	23 52	24 36
	20	208	24.3		08.7	116	58.0	10.7		17	21.0	13.2	58.1	30	19 00	19 26	19 58	22 54	23 26	24 04	00 04
WEDNESDAY	21	223	24.3	..	08.2	131	27.7	10.6		17	34.2	13.2	58.1	20	18 41	19 05	19 33	23 04	23 42	24 25	00 25
	22	238	24.3		07.7	145	57.3	10.4		17	47.4	13.1	58.1	N 10	18 25	18 47	19 14	23 12	23 55	24 43	00 43
	23	253	24.3		07.2	160	26.7	10.3		18	00.5	13.0	58.2	0	18 10	18 32	18 58	23 20	24 08	00 08	01 00
	24	268	24.2	N 20	06.7	174	56.0	10.2	S	18	13.5	12.9	58.2	S 10	17 55	18 17	18 43	23 29	24 21	00 21	01 17
	25	283	24.2		06.2	189	25.2	10.1		18	26.4	12.8	58.2	20	17 39	18 03	18 30	23 37	24 34	00 34	01 36
THURSDAY	26	298	24.2		05.7																

G.M.T.	ARIES			VENUS -3-6			MARS -1-0			JUPITER -1-4			SATURN +0-5			STARS		
	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	m	s	°	m	s	°	m	s	°	m	s	°	m	s	°	m	s	°
24 00	301 32.5	223 48.3	N 20 38.0	60 55.1	S 24 09.9		119 56.6	N 0 37.6		264 51.2	N 11 57.0		Acamar	315 43.4	S 40 25.2			
01	316 34.9	238 47.9	38.4	75 57.0	10.0		134 58.8	37.4		279 53.6	57.0		Achernar	335 51.0	S 57 23.1			
02	331 37.4	253 47.4	38.7	90 58.9	10.1		150 00.9	37.3		294 55.9	57.1		Acruz	173 47.1	S 62 56.1			
03	346 39.8	268 46.9	39.1	106 00.8	10.2		165 03.0	37.1		309 58.3	57.1		Adhara	255 38.9	S 28 55.5			
04	1 42.3	283 46.4	39.4	121 02.8	10.3		180 05.1	37.0		325 00.6	57.1		Aldebaran	291 27.6	N 16 27.1			
05	16 44.8	298 46.0	39.7	136 04.7	10.4		195 07.2	36.8		340 02.9	57.2							
06	31 47.2	313 45.5	N 20 40.1	151 06.6	S 24 10.5		210 09.3	N 0 36.7		355 05.3	N 11 57.2		Alioth	166 49.5	N 56 07.7			
07	46 49.7	328 45.0	40.4	166 08.5	10.6		225 11.5	36.5		10 07.6	57.2		Alkaid	153 24.7	N 49 28.1			
08	61 52.2	343 44.5	40.7	181 10.4	10.7		240 13.6	36.3		25 10.0	57.2		Al Na'ir	28 24.6	S 47 06.4			
09	76 54.6	358 44.0	41.1	196 12.3	10.8		255 15.7	36.2		40 12.3	57.3		Alnilam	276 20.2	S 1 13.0			
10	91 57.1	13 43.6	41.4	211 14.2	10.9		270 17.8	36.0		55 14.7	57.3		Alphard	218 28.9	S 8 31.4			
11	106 59.6	28 43.1	41.8	226 16.1	11.0		285 19.9	35.9		70 17.0	57.3							
12	122 02.0	43 42.6	N 20 42.1	241 18.0	S 24 11.1		300 22.1	N 0 35.7		85 19.4	N 11 57.4		Alphecca	126 38.8	N 26 49.0			
13	137 04.5	58 42.1	42.4	256 19.9	11.2		315 24.2	35.5		100 21.7	57.4		Alpheratz	358 17.7	N 28 55.3			
14	152 07.0	73 41.6	42.7	271 21.8	11.3		330 26.3	35.4		115 24.1	57.4		Altair	62 40.2	N 8 47.2			
15	167 09.4	88 41.1	43.1	286 23.7	11.4		345 28.4	35.2		130 26.4	57.4		Ankaa	353 47.9	S 42 28.0			
16	182 11.9	103 40.7	43.4	301 25.6	11.5		0 30.5	35.1		145 28.8	57.5		Antares	113 06.7	S 26 22.1			
17	197 14.3	118 40.2	43.7	316 27.5	11.6		15 32.6	34.9		160 31.1	57.5							
18	212 16.8	133 39.7	N 20 44.1	331 29.3	S 24 11.7		30 34.8	N 0 34.8		175 33.5	N 11 57.5		Arcturus	146 25.8	N 19 20.5			
19	227 19.3	148 39.2	44.4	346 31.2	11.8		45 36.9	34.6		190 35.8	57.6		Atria	108 38.0	S 68 58.8			
20	242 21.7	163 38.7	44.7	1 33.1	11.9		60 39.0	34.4		205 38.2	57.6		Avior	234 32.4	S 59 24.5			
21	257 24.2	178 38.2	45.0	16 35.0	12.0		75 41.1	34.3		220 40.5	57.6		Bellatrix	279 07.8	N 6 19.6			
22	272 26.7	193 37.7	45.4	31 36.9	12.1		90 43.2	34.1		235 42.9	57.6		Betelgeuse	271 37.4	N 7 24.3			
23	287 29.1	208 37.3	45.7	46 38.8	12.2		105 45.3	34.0		250 45.2	57.7							
25 00	302 31.6	223 36.8	N 20 46.0	61 40.7	S 24 12.3		120 47.5	N 0 33.8		265 47.6	N 11 57.7		Canopus	264 11.4	S 52 40.4			
01	317 34.1	238 36.3	46.3	76 42.5	12.4		135 49.6	33.6		280 49.9	57.7		Capella	281 23.7	N 45 58.1			
02	332 36.5	253 35.8	46.7	91 44.4	12.5		150 51.7	33.5		295 52.2	57.7		Deneb	49 53.7	N 45 10.2			
03	347 39.0	268 35.3	47.0	106 46.3	12.6		165 53.8	33.3		310 54.6	57.8		Denebola	183 07.5	N 14 44.7			
04	2 41.5	283 34.8	47.3	121 48.2	12.7		180 55.9	33.2		325 56.9	57.8		Diphda	349 28.8	S 18 09.0			
05	17 43.9	298 34.3	47.6	136 50.0	12.8		195 58.0	33.0		340 59.3	57.8							
06	32 46.4	313 33.8	N 20 47.9	151 51.9	S 24 12.9		211 00.1	N 0 32.9		356 01.6	N 11 57.9		Dubhe	194 32.2	N 61 55.2			
07	47 48.8	328 33.3	48.3	166 53.8	13.0		226 02.3	32.7		11 04.0	57.9		Elnath	278 54.8	N 28 35.1			
08	62 51.3	343 32.9	48.6	181 55.7	13.1		241 04.4	32.5		26 06.3	57.9		Eltanin	91 01.1	N 51 29.5			
09	77 53.8	358 32.4	48.9	196 57.5	13.2		256 06.5	32.4		41 08.7	57.9		Enif	34 19.3	N 9 44.1			
10	92 56.2	13 31.9	49.2	211 59.4	13.3		271 08.6	32.2		56 11.0	58.0		Fomalhaut	16 00.0	S 29 46.9			
11	107 58.7	28 31.4	49.5	227 01.3	13.4		286 10.7	32.1		71 13.4	58.0							
12	123 01.2	43 30.9	N 20 49.8	242 03.1	S 24 13.5		301 12.8	N 0 31.9		86 15.7	N 11 58.0		Gacrux	172 38.4	S 56 56.8			
13	138 03.6	58 30.4	50.1	257 05.0	13.7		316 14.9	31.7		101 18.1	58.0		Gienah	176 26.6	S 17 22.4			
14	153 06.1	73 29.9	50.5	272 06.9	13.8		331 17.0	31.6		116 20.4	58.1		Hadar	149 35.3	S 60 14.0			
15	168 08.6	88 29.4	50.8	287 08.7	13.9		346 19.2	31.4		131 22.8	58.1		Hamal	328 38.2	N 23 19.2			
16	183 11.0	103 28.9	51.1	302 10.6	14.0		1 21.3	31.3		146 25.1	58.1		Kaus Aust.	84 27.3	S 34 24.2			
17	198 13.5	118 28.4	51.4	317 12.4	14.1		16 23.4	31.1		161 27.5	58.2							
18	213 15.9	133 27.9	N 20 51.7	332 14.3	S 24 14.2		31 25.5	N 0 30.9		176 29.8	N 11 58.2		Kochab	137 17.7	N 74 17.0			
19	228 18.4	148 27.4	52.0	347 16.2	14.3		46 27.6	30.8		191 32.2	58.2		Markab	14 11.1	N 15 02.5			
20	243 20.9	163 26.9	52.3	2 18.0	14.4		61 29.7	30.6		206 34.6	58.2		Menkar	314 49.8	N 3 58.4			
21	258 23.3	178 26.4	52.6	17 19.9	14.5		76 31.8	30.5		221 36.9	58.3		Menkent	148 46.8	S 36 13.5			
22	273 25.8	193 25.9	52.9	32 21.7	14.6		91 33.9	30.3		236 39.3	58.3		Miaplacidus	221 48.1	S 69 35.5			
23	288 28.3	208 25.4	53.2	47 23.6	14.7		106 36.1	30.1		251 41.6	58.3							
26 00	303 30.7	223 24.9	N 20 53.5	62 25.4	S 24 14.8		121 38.2	N 0 30.0		266 44.0	N 11 58.3		Mirfak	309 28.1	N 49 45.2			
01	318 33.2	238 24.4	53.8	77 27.3	14.9		136 40.3	29.8		281 46.3	58.4		Nunki	76 38.9	S 26 20.3			
02	333 35.7	253 23.9	54.1	92 29.1	15.0		151 42.4	29.7		296 48.7	58.4		Peacock	54 10.5	S 56 50.1			
03	348 38.1	268 23.4	54.4	107 31.0	15.1		166 44.5	29.5		311 51.0	58.4		Pollux	244 08.5	N 28 06.2			
04	3 40.6	283 22.9	54.7	122 32.8	15.2		181 46.6	29.3		326 53.4	58.4		Procyon	245 34.6	N 5 18.4			
05	18 43.1	298 22.4	55.0	137 34.7	15.3		196 48.7	29.2		341 55.7	58.5							
06	33 45.5	313 21.9	N 20 55.3	152 36.5	S 24 15.5		211 50.8	N 0 29.0		356 58.1	N 11 58.5		Rasalhague	96 36.9	N 12 34.8			
07	48 48.0	328 21.4	55.6	167 38.4	15.6		226 52.9	28.9		12 00.4	58.5		Regulus	208 18.9	N 12 07.2			
08	63 50.4	343 20.9	55.9	182 40.2	15.7		241 55.1	28.7		27 02.8	58.5		Rigel	281 44.1	S 8 13.9			
09	78 52.9	358 20.4	56.2	197 42.0	15.8		256 57.2	28.5		42 05.1	58.6		Rigel Kent.	140 37.1	S 60 42.9			
10	93 55.4	13 19.9	56.5	212 43.9	15.9		271 59.3	28.4		57 07.5	58.6		Sabik	102 50.3	S 15 41.5			
11	108 57.8	28 19.4	56.8	227 45.7	16.0		287 01.4	28.2		72 09.8	58.6							
12	124 00.3	43 18.9	N 20 57.1	242 47.5	S 24 16.1		302 03.5	N 0 28.1		87 12.2	N 11 58.6		Schedar	350 18.4	N 56 22.1			
13	139 02.8	58 18.4	57.4	257 49.4	16.2		317 05.6	27.9		102 14.6	58.7		Shaula	97 06.6	S 37 05.2			
14	154 05.2	73 17.9	57.7	272 51.2	16.3		332 07.7	27.7		117 16.9	58.7		Sirius	259 03.2	S 16 40.2			
15	169 07.7	88 17.4	58.0	287 53.0	16.4		347 09.8	27.6		132 19.3	58.7		Spica	159 06.2	S 11 00.2			
16	184 10.2	103 16.8	58.3	302 54.9	16.5		2 11.9	27.4		147 21.6	58.8		Suhail	223 17.4	S 43 18.5			
17	199 12.6	118 16.3	58.6	317 56.7	16.6		17 14.0	27.2		162 24.0	58.8							
18	214 15.1	133 15.8	N 20 58.8	332 58.5	S 24 16.8		32 16.2	N 0 27.1		177 26.3	N 11 58.8		Vega	81 01.0	N 38 45.3			
19	229 17.6	148 15.3	59.1	348 00.4	16.9		47 18.3	26.9		192 28.7	58.8		Zuben'ubi	137 42.1	S 15 55.1			
20	244 20.0	163 14.8	59.4	3 02.2	17.0		62 20.4	26.8		207 31.0	58.9							
21	259 22.5	178 14.3	20 59.7	18 04.0	17.1		77 22.5	26.6		222 33.4	58.9							
22	274																	

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise				
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.	Naut.	Civil		24	25	26	27	
d	h	°	'	°	'	°	'	'	h	m	h	m	h	m	h	m
24	00	178 23·9	N 19 57·5	75 21·5	7·8	S 21 52·2	11·2	58·9	N 72							
	01	193 23·9	56·9	89 48·3	7·7	22 03·4	11·1	58·9	N 70							
	02	208 23·9	56·4	104 15·0	7·5	22 14·5	10·9	58·9	68	////	////	01 33				
	03	223 23·9	55·4	118 41·5	7·4	22 25·4	10·9	59·0	66	////	////	02 16				
	04	238 23·9	55·9	133 07·9	7·3	22 36·3	10·7	59·0	64	////	00 40	02 45	18 39			
05	253 23·8	54·8	147 34·2	7·1	22 47·0	10·6	59·0	62	////	01 44	03 06	17 45				21 53
06									60	////	02 16	03 24	17 13	19 08	20 34	21 06
T H U R S D A Y	07	268 23·8	N 19 54·3	162 00·3	6·9	S 22 57·6	10·4	59·1	N 58	00 37	02 40	03 38	16 49	18 32	19 52	20 35
	08	283 23·8	53·8	176 26·2	6·8	23 08·0	10·4	59·1	56	01 35	02 59	03 50	16 30	18 06	19 23	20 12
	09	298 23·8	53·3	190 52·0	6·7	23 18·4	10·2	59·1	54	02 05	03 14	04 01	16 14	17 45	19 01	19 53
	10	313 23·8	52·8	205 17·7	6·6	23 28·6	10·0	59·2	52	02 27	03 28	04 11	16 00	17 28	18 42	19 37
	11	328 23·8	52·2	219 43·3	6·4	23 38·6	10·0	59·2	50	02 45	03 39	04 19	15 48	17 13	18 27	19 23
12	343 23·8	51·7	234 08·7	6·2	23 48·6	9·8	59·2	45	03 18	04 02	04 37	15 23	16 43	17 55	18 54	
F R I D A Y	13	358 23·8	N 19 51·2	248 33·9	6·2	S 23 58·4	9·6	59·3	N 40	03 42	04 21	04 52	15 04	16 20	17 31	18 32
	14	13 23·8	50·6	262 59·1	5·9	24 08·0	9·6	59·3	35	04 01	04 35	05 04	14 47	16 01	17 11	18 13
	15	28 23·7	50·1	277 24·0	5·9	24 17·6	9·3	59·4	30	04 16	04 48	05 14	14 33	15 44	16 54	17 57
	16	43 23·7	49·6	291 48·9	5·7	24 26·9	9·3	59·4	20	04 41	05 09	05 33	14 09	15 17	16 25	17 30
	17	58 23·7	49·1	306 13·6	5·6	24 36·2	9·1	59·4	N 10	05 00	05 26	05 48	13 49	14 53	16 00	17 06
18									0	05 15	05 41	06 03	13 30	14 31	15 37	16 44
S A T U R D A Y	19	88 23·7	N 19 48·0	335 02·6	5·3	S 24 54·2	8·8	59·5	S 10	05 29	05 55	06 17	13 11	14 09	15 14	16 22
	20	103 23·7	47·5	349 26·9	5·1	25 03·0	8·6	59·5	20	05 42	06 09	06 33	12 51	13 46	14 49	15 59
	21	118 23·7	46·9	3 51·0	5·1	25 11·6	8·5	59·6	30	05 55	06 24	06 50	12 28	13 19	14 21	15 31
	22	133 23·7	46·4	18 15·1	4·8	25 20·1	8·4	59·6	35	06 02	06 33	07 00	12 14	13 03	14 04	15 15
	23	148 23·7	45·9	32 38·9	4·5	25 28·5	8·1	59·6	40	06 09	06 42	07 11	11 59	12 45	13 44	14 56
24	163 23·7	45·3	47 02·7	4·6	25 36·6	8·0	59·7	45	06 17	06 53	07 25	11 41	12 23	13 20	14 33	
S U N D A Y	00	178 23·6	N 19 44·8	61 26·3	4·5	S 25 44·6	7·9	59·7	S 50	06 25	07 05	07 41	11 18	11 55	12 49	14 03
	01	193 23·6	44·3	75 49·8	4·3	25 52·5	7·6	59·7	52	06 29	07 11	07 49	11 07	11 41	12 34	13 49
	02	208 23·6	43·7	90 13·1	4·3	26 00·1	7·6	59·8	54	06 33	07 17	07 58	10 55	11 26	12 16	13 32
	03	223 23·6	43·2	104 36·4	4·1	26 07·7	7·3	59·8	56	06 38	07 24	08 07	10 41	11 07	11 54	13 12
	04	238 23·6	42·7	118 59·5	3·9	26 15·0	7·2	59·8	58	06 42	07 32	08 18	10 25	10 45	11 27	12 46
05	253 23·6	42·1	133 22·4	3·9	26 22·2	7·0	59·9	S 60	06 47	07 40	08 31	10 06	10 16	10 48	12 12	
M O N D A Y	06	268 23·6	N 19 41·6	147 45·3	3·7	S 26 29·2	6·8	59·9								
	07	283 23·6	41·1	162 08·0	3·6	26 36·0	6·6	59·9								
	08	298 23·6	40·5	176 30·6	3·4	26 42·6	6·5	60·0								
	09	313 23·6	40·0	190 53·0	3·4	26 49·1	6·3	60·0								
	10	328 23·6	39·5	205 15·4	3·2	26 55·4	6·1	60·0								
11	343 23·6	38·9	219 37·6	3·1	27 01·5	5·9	60·1									
T U E S D A Y	12	358 23·6	N 19 38·4	233 59·7	3·0	S 27 07·4	5·7	60·1	N 72							
	13	13 23·6	37·8	248 21·7	2·9	27 13·1	5·6	60·1	N 70							
	14	28 23·6	37·3	262 43·6	2·8	27 18·7	5·3	60·1	68	22 34	////	////				
	15	43 23·6	36·8	277 05·4	2·7	27 24·0	5·2	60·2	66	21 53	////	////				
	16	58 23·5	36·2	291 27·1	2·6	27 29·2	4·9	60·2	64	21 26	23 21	////	20 37			
17	73 23·5	35·7	305 48·7	2·4	27 34·1	4·8	60·2	62	21 05	22 25	////	21 32				
18									60	20 48	21 54	////	22 05	22 19	23 13	25 03
W E D N E S D A Y	19	88 23·5	N 19 35·1	320 10·1	2·3	S 27 38·9	4·6	60·3	N 58	20 33	21 31	23 26	22 29	22 56	23 56	25 33
	20	103 23·5	34·6	334 31·5	2·4	27 43·5	4·4	60·3	56	20 21	21 12	22 35	22 49	23 23	24 24	20 04
	21	118 23·5	34·0	348 52·8	2·1	27 47·9	4·1	60·3	54	20 11	20 57	22 06	23 05	23 44	24 46	00 46
	22	133 23·5	33·5	3 13·9	2·1	27 52·0	4·0	60·3	52	20 01	20 44	21 44	23 19	24 01	00 01	01 05
	23	148 23·5	32·9	17 35·0	2·0	27 56·0	3·8	60·4	50	19 53	20 33	21 27	23 32	24 16	00 16	01 20
24	163 23·5	32·4	31 56·0	1·9	27 59·8	3·5	60·4	45	19 35	20 10	20 54	23 58	24 47	00 47	01 52	
T H U R S D A Y	00	178 23·5	N 19 31·9	46 16·9	1·8	S 28 03·3	3·4	60·4	N 40	19 21	19 52	20 30	24 18	00 18	01 10	02 16
	01	193 23·5	31·3	60 37·7	1·7	28 06·7	3·1	60·5	35	19 09	19 37	20 11	24 36	00 36	01 30	02 36
	02	208 23·5	30·8	74 58·4	1·7	28 09·8	3·0	60·5	30	18 58	19 24	19 56	00 04	00 50	01 47	02 53
	03	223 23·5	30·2	89 19·1	1·6	28 12·8	2·7	60·5	20	18 40	19 04	19 32	00 25	01 16	02 15	03 22
	04	238 23·5	29·7	103 39·7	1·5	28 15·5	2·5	60·5	N 10	18 24	18 47	19 13	00 43	01 38	02 39	03 46
05	253 23·5	29·1	118 00·2	1·4	28 18·0	2·4	60·6	0	18 10	18 32	18 57	01 00	01 58	03 02	04 09	
F R I D A Y	06	268 23·5	N 19 28·6	132 20·6	1·4	S 28 20·4	2·1	60·6	S 10	17 56	18 18	18 44	01 17	02 19	03 25	04 32
	07	283 23·5	28·0	146 41·0	1·3	28 22·5	1·8	60·6	20	17 40	18 04	18 31	01 36	02 41	03 49	04 56
	08	298 23·5	27·5	161 01·3	1·2	28 24·3	1·7	60·6	30	17 23	17 49	18 18	01 57	03 07	04 18	05 24
	09	313 23·5	26·9	175 21·5	1·2	28 26·0	1·5	60·7	35	17 13	17 40	18 11	02 09	03 22	04 34	05 41
	10	328 23·5	26·4	189 41·7	1·2	28 27·5	1·2	60·7	40	17 02	17 31	18 04	02 24	03 40	04 54	06 00
11	343 23·5	25·8	204 01·9	1·0	28 28·7	1·0	60·7	45	16 49	17 21	17 56	02 41	04 01	05 18	06 24	
S A T U R D A Y	12	358 23·5	N 19 25·3	218 21·9	1·1	S 28 29·7	0·8	60·7	S 50	16 32	17 08	17 48	03 02	04 28	05 49	06 54
	13	13 23·5	24·7	232 42·0	1·0	28 30·5	0·6	60·7	52	16 24	17 03	17 44	03 12	04 41	06 04	07 09
	14	28 23·5	24·2	247 02·0	0·9	28 31·1	0·3	60·8	54	16 16	16 56	17 40	03 24	04 57	06 21	07 26
	15	43 23·5	23·6	261 21·9	1·0	28 31·4	0·2	60·8	56	16 06	16 49	17 36	03 37	05 15	06 43	07 46
	16	58 23·5	23·0	275 41·9	0·8	28 31·6	0·1	60·8	58	15 55	16 42	17 31	03 52	05 37	07 10	08 12
17	73 23·5	22·5	290 01·7	0·8	28 31·5	0·3	60·8	S 60	15 43	16 33	17 26	04 11	06 05	07 49	08 47	
S U N D A Y	18	88 23·5	N 19 21·4	304 21·6	0·8	S 28 31·2	0·5	60·9								
	19	103 23·5	21·9	318 41·4	0·9	28 30·7	0·8	60·9								
	20	118 23·5	20·8	333 01·3	0·8	28 29·9	1·0	60·9								
	21	133 23·5	20·3	347 21·1	0·7	28 28·9	1·2	60·9								
	22	148 23·5	19·7	1 40·8	0·8	28 27·7	1·4	60·9								
23	163 23·5	19·1	16 00·6	0·8	28 26·3	1·6	60·9									
		S.D. 15·8	<i>d</i> 0·5	S.D. 16·2		16·4		16·5	Day	SUN			MOON			
										Eqn. of Time	Mer. Pass.	Mer. Upper	Pass. Lower	Age	Phase	
										00 ^h						
										<i>m</i> <i>s</i>	<i>m</i> <i>s</i>	<i>h</i> <i>m</i>	<i>h</i> <i>m</i>	<i>h</i> <i>m</i>	<i>d</i>	
									24	06 24	06 25	12 06	19 44	07 15	10	
									25	06 25	06 26	12 06	20 46	08 15	11	

		ARIES			VENUS -3-6			MARS -1-0			JUPITER -1-4			SATURN +0-5			STARS								
G.M.T.		G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	Name	S.H.A.	Dec.						
d	h	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"		°	'	"					
SUNDAY	27 00	304	29.9		223	12.8	N 21	00.6	63	09.5	S 24	17.4	122	28.8	N 0	26.1	267	40.5	N 11	59.0	Acamar	315	43.4	S 40	25.2
	01	319	32.3		238	12.3		00.8	78	11.3		17.5	137	30.9		25.9	282	42.8		59.0	Achernar	335	50.9	S 57	23.1
	02	334	34.8		253	11.7		01.1	93	13.1		17.6	152	33.0		25.8	297	45.2		59.0	Acruz	173	47.1	S 62	56.1
	03	349	37.3		268	11.2	..	01.4	108	14.9	..	17.7	167	35.1	..	25.6	312	47.5	..	59.0	Adhara	255	38.9	S 28	55.5
	04	4 39.7			283	10.7		01.7	123	16.8		17.8	182	37.2		25.5	327	49.9		59.1	Aldebaran	291	27.6	N 16	27.1
	05	19	42.2		298	10.2		02.0	138	18.6		18.0	197	39.3		25.3	342	52.2		59.1					
	06	34	44.7		313	09.7	N 21	02.2	153	20.4	S 24	18.1	212	41.4	N 0	25.1	357	54.6	N 11	59.1	Alloth	166	49.5	N 56	07.7
	07	49	47.1		328	09.2		02.5	168	22.2		18.2	227	43.6		25.0	12	57.0		59.1	Alkaid	153	24.7	N 49	28.1
	08	64	49.6		343	08.7		02.8	183	24.0		18.3	242	45.7		24.8	27	59.3		59.2	Al Na'ir	28	24.5	S 47	06.6
	09	79	52.1		358	08.1	..	03.1	198	25.8	..	18.4	257	47.8	..	24.7	43	01.7	..	59.2	Alnilam	276	20.2	S 1	13.0
	10	94	54.5		13	07.6		03.4	213	27.6		18.5	272	49.9		24.5	58	04.0		59.2	Alphard	218	28.9	S 8	31.4
	11	109	57.0		28	07.1		03.6	228	29.4		18.6	287	52.0		24.3	73	06.4		59.2					
	12	124	59.4		43	06.6	N 21	03.9	243	31.2	S 24	18.7	302	54.1	N 0	24.2	88	08.8	N 11	59.2	Alphecca	126	38.8	N 26	49.1
	13	140	01.9		58	06.1		04.2	258	33.0		18.8	317	56.2		24.0	103	11.1		59.3	Alpheratz	358	17.7	N 28	55.3
	14	155	04.4		73	05.6		04.4	273	34.8		18.9	332	58.3		23.8	118	13.5		59.3	Altair	62	40.2	N 8	47.2
	15	170	06.8		88	05.0	..	04.7	288	36.6	..	19.1	348	00.4	..	23.7	133	15.8	..	59.3	Ankaa	353	47.9	S 42	28.0
	16	185	09.3		103	04.5		05.0	303	38.4		19.2	3	02.5		23.5	148	18.2		59.3	Antares	113	06.7	S 26	22.1
	17	200	11.8		118	04.0		05.3	318	40.2		19.3	18	04.6		23.3	163	20.5		59.4					
	18	215	14.2		133	03.5	N 21	05.5	333	42.0	S 24	19.4	33	06.7	N 0	23.2	178	22.9	N 11	59.4	Arcturus	146	25.8	N 19	20.5
	19	230	16.7		148	03.0		05.8	348	43.8		19.5	48	08.8		23.0	193	25.3		59.4	Atria	108	38.1	S 68	58.8
	20	245	19.2		163	02.4		06.1	3	45.6		19.6	63	10.9		22.9	208	27.6		59.4	Avior	234	32.4	S 59	24.5
	21	260	21.6		178	01.9	..	06.3	18	47.4	..	19.7	78	13.0	..	22.7	223	30.0	..	59.5	Bellatrix	279	07.7	N 6	19.6
	22	275	24.1		193	01.4		06.6	33	49.2		19.8	93	15.1		22.5	238	32.3		59.5	Betelgeuse	271	37.4	N 7	24.4
23	290	26.6		208	00.9		06.9	48	51.0		19.9	108	17.2		22.4	253	34.7		59.5						
MONDAY	28 00	305	29.0		223	00.4	N 21	07.1	63	52.8	S 24	20.1	123	19.3	N 0	22.2	268	37.1	N 11	59.5	Canopus	264	11.3	S 52	40.4
	01	320	31.5		237	59.8		07.4	78	54.6		20.2	138	21.4		22.0	283	39.4		59.6	Capella	281	23.7	N 45	58.1
	02	335	33.9		252	59.3		07.6	93	56.4		20.3	153	23.5		21.9	298	41.8		59.6	Deneb	49	53.7	N 45	10.2
	03	350	36.4		267	58.8	..	07.9	108	58.2	..	20.4	168	25.6	..	21.7	313	44.1	..	59.6	Denebola	183	07.5	N 14	44.7
	04	5 38.9		282	58.3		08.2	124	00.0		20.5	183	27.8		21.6	328	46.5		59.6	Diphda	349	28.8	S 18	09.0	
	05	20	41.3		297	57.7		08.4	139	01.7		20.6	198	29.9		21.4	343	48.9		59.6					
	06	35	43.8		312	57.2	N 21	08.7	154	03.5	S 24	20.7	213	32.0	N 0	21.2	358	51.2	N 11	59.7	Dubhe	194	32.3	N 61	55.2
	07	50	46.3		327	56.7		08.9	169	05.3		20.8	228	34.1		21.1	13	53.6		59.7	Elnath	278	54.7	N 28	35.1
	08	65	48.7		342	56.2		09.2	184	07.1		21.0	243	36.2		20.9	28	55.9		59.7	Eltanin	91	01.1	N 51	29.6
	09	80	51.2		357	55.6	..	09.5	199	08.9	..	21.1	258	38.3	..	20.7	43	58.3	..	59.7	Enif	34	19.3	N 9	44.4
	10	95	53.7		12	55.1		09.7	214	10.6		21.2	273	40.4		20.6	59	00.7		59.8	Fomalhaut	16	00.0	S 29	46.9
	11	110	56.1		27	54.6		10.0	229	12.4		21.3	288	42.5		20.4	74	03.0		59.8					
	12	125	58.6		42	54.1	N 21	10.2	244	14.2	S 24	21.4	303	44.6	N 0	20.2	89	05.4	N 11	59.8	Gacrux	172	38.4	S 56	56.8
	13	141	01.1		57	53.5		10.5	259	16.0		21.5	318	46.7		20.1	104	07.7		59.8	Gienah	176	26.6	S 17	22.4
	14	156	03.5		72	53.0		10.7	274	17.8		21.6	333	48.8		19.9	119	10.1		59.9	Hadar	149	35.3	S 60	14.0
	15	171	06.0		87	52.5	..	11.0	289	19.5	..	21.8	348	50.9	..	19.8	134	12.5	..	59.9	Hamal	328	38.2	N 23	19.2
	16	186	08.4		102	51.9		11.2	304	21.3		21.9	3	53.0		19.6	149	14.8		59.9	Kaus Aust.	84	27.3	S 34	24.2
	17	201	10.9		117	51.4		11.5	319	23.1		22.0	18	55.1		19.4	164	17.2		59.9					
	18	216	13.4		132	50.9	N 21	11.7	334	24.8	S 24	22.1	33	57.2	N 0	19.3	179	19.6	N 11	59.9	Kochab	137	17.8	N 74	17.0
	19	231	15.8		147	50.3		12.0	349	26.6		22.2	48	59.3		19.1	194	21.9	12	00.0	Markab	14	11.1	N 15	02.5
	20	246	18.3		162	49.8		12.2	4	28.4		22.3	64	01.4		18.9	209	24.3		00.0	Menkar	314	49.8	N 3	58.5
	21	261	20.8		177	49.3	..	12.5	19	30.1	..	22.4	79	03.5	..	18.8	224	26.7	..	00.0	Menkent	148	46.8	S 36	13.5
	22	276	23.2		192	48.7		12.7	34	31.9		22.6	94	05.6		18.6	239	29.0		00.0	Miaplacidus	221	48.1	S 69	35.5
23	291	25.7		207	48.2		13.0	49	33.7		22.7	109	07.7		18.4	254	31.4		00.1						
TUESDAY	29 00	306	28.2		222	47.7	N 21	13.2	64	35.4	S 24	22.8	124	09.8	N 0	18.3	269	33.7	N 12	00.1	Mirfak	309	28.1	N 49	45.2
	01	321	30.6		237	47.1		13.4	79	37.2		22.9	139	11.9		18.1	284	36.1		00.1	Nunki	76	38.9	S 26	20.3
	02	336	33.1		252	46.6		13.7	94	38.9		23.0	154	14.0		17.9	299	38.5		00.1	Peacock	54	10.4	S 56	50.1
	03	351	35.6		267	46.1	..	13.9	109	40.7	..	23.1	169	16.1	..	17.8	314	40.8	..	00.1	Pollux	244	08.5	N 28	06.2
	04	6 38.0		282	45.5		14.2	124	42.5		23.3	184	18.2		17.6	329	43.2		00.2	Procyon	245	34.6	N 5	18.4	
	05	21	40.5		297	45.0		14.4	139	44.2		23.4	199	20.3		17.4	344	45.6		00.2					
	06	36	42.9		312	44.5	N 21	14.6	154	46.0	S 24	23.5	214	22.4	N 0	17.3	359	47.9	N 12	00.2	Rasalhague	96	36.9	N 12	34.8
	07	51	45.4		327	43.9		14.9	169	47.7		23.6	229	24.5		17.1	14	50.3		00.2	Regulus	208	18.9	N 12	07.2
	08	66	47.9		342	43.4		15.1	184	49.5		23.7	244	26.6		17.0	29	52.7		00.3	Rigel	281	44.1	S 8	13.9
	09	81	50.3		357	42.9	..	15.3	199	51.2	..	23.8	259	28.7	..	16.8	44	55.0	..	00.3	Rigel Kent.	140	37.1	S 60	42.9
	10	96	52.8		12	42.3		15.6	214	53.0		23.9	274	30.8		16.6	59	57.4		00.3	Sabik	102	50.3	S 15	41.5
	11	111	55.3		27	41.8		15.8	229	54.7		24.1	289	32.9		16.5	74	59.8		00.3					
	12	126	57.7		42	41.2	N 21	16.0	244	56.5	S 24	24.2	304	35.0	N 0	16.3	90	02.1	N 12	00.3	Schedar	350	18.4	N 56	22.1
	13	142	00.2		57	40.7		16.3	259	58.2		24.3	319	37.1		16.1	105	04.5		00.4	Shaula	97	06.6	S 37	05.2
	14	157	02.7		72	40.2		16.5	275	00.0		24.4	334	39.2		16.0									

G.M.T.	SUN				MOON				Lat.	Twilight		Sun-rise	Moonrise				
	G.M.T.		Dec.		G.M.T.		Dec.			Naut.	Civil		27	28	29	30	
	h	m	h	m	h	m	h	m			h						m
27 00	178	23.6	N 19	18.6	35	25.4	6-7	28 24.7	1-9	61.6							
01	193	23.6		18.6	44	45.1	5-8	28 22.8	2-1	61.6		01 29			23 14	22 14	
02	208	23.6		18.6	53	55.9	5-8	28 20.7	2-3	61.6		01 52			22 36	21 58	
03	223	23.6		18.6	13	19.7	5-7	28 18.4	2-5	61.6		02 29		23 03	22 09	21 45	
04	238	23.6		18.6	22	39.4	5-8	28 15.9	2-8	61.6		03 04		22 11	21 48	21 34	
05	253	23.6		18.6	31	59.2	5-8	28 13.1	3-0	61.6		03 37	21 53	21 38	21 31	21 24	
06	268	23.6	N 19	18.2	40	59.2	5-8	28 10.1	3-2	61.1		04 10	21 06	21 14	21 16	21 16	
07	283	23.6		18.2	49	38.8	5-9	28 06.9	3-4	61.1	N 58	01 04	20 35	20 55	21 04	21 09	
08	298	23.6		18.2	58	18.4	5-9	28 03.5	3-7	61.1	56	01 47	20 12	20 38	20 53	21 03	
09	313	23.6		18.2	67	38.0	5-9	28 00.1	3-9	61.1	54	02 14	19 53	20 24	20 44	20 57	
10	328	23.6		18.2	76	57.6	5-9	27 56.6	4-1	61.1	52	02 34	19 37	20 12	20 35	20 52	
11	343	23.6		18.2	85	37.2	5-9	27 53.2	4-3	61.1	50	02 51	19 23	20 01	20 28	20 47	
12	358	23.6	N 19	17.8	94	16.8	5-9	27 49.8	4-5	61.1	45	03 22	19 06	19 38	20 11	20 37	
13	373	23.6		17.8	103	36.4	5-9	27 46.4	4-8	61.1	N 40	03 45	18 32	19 20	19 58	20 28	
14	388	23.6		17.8	112	56.0	5-9	27 43.0	5-1	61.1	35	04 04	18 13	19 05	19 46	20 21	
15	403	23.6		17.8	121	35.6	5-9	27 39.6	5-4	61.2	30	04 19	17 57	18 51	19 36	20 15	
16	418	23.6		17.8	130	15.2	5-9	27 36.2	5-7	61.2	20	04 42	17 30	18 28	19 19	20 03	
17	433	23.6		17.8	139	34.8	5-9	27 32.8	6-0	61.2	N 10	05 00	17 06	18 08	19 04	19 53	
18	448	23.6	N 19	17.4	148	14.4	5-9	27 29.4	6-3	61.2	0	05 16	16 44	17 49	18 49	19 44	
19	463	23.6		17.4	157	34.0	5-9	27 26.0	6-6	61.2	S 10	05 29	16 22	17 30	18 35	19 34	
20	478	23.6		17.4	166	13.6	5-9	27 22.6	6-9	61.2	20	05 42	15 59	17 10	18 19	19 24	
21	493	23.6		17.4	175	33.2	5-9	27 19.2	7-2	61.2	30	05 54	15 31	16 46	18 01	19 13	
22	508	23.6		17.4	184	12.8	5-9	27 15.8	7-5	61.2	35	06 06	15 15	16 32	17 51	19 06	
23	523	23.6		17.4	193	32.4	5-9	27 12.4	7-8	61.2	40	06 07	14 56	16 16	17 39	18 58	
24	538	23.6	N 19	17.0	202	12.0	5-9	27 09.0	8-1	61.2	45	06 14	14 33	15 57	17 24	18 49	
25	553	23.6		17.0	211	31.6	5-9	27 05.6	8-4	61.2	S 50	06 22	14 03	15 33	17 07	18 38	
26	568	23.6		17.0	220	11.2	5-9	27 02.2	8-7	61.2	52	06 26	13 49	15 21	16 58	18 33	
27	583	23.6		17.0	229	30.8	5-9	26 58.8	9-0	61.3	54	06 30	13 32	15 08	16 49	18 27	
28	598	23.6		17.0	238	10.4	5-9	26 55.4	9-3	61.3	56	06 34	13 12	14 52	16 39	18 21	
29	613	23.6	N 19	16.6	247	30.0	5-9	26 52.0	9-6	61.3	58	06 38	12 46	14 34	16 26	18 14	
30	628	23.6		16.6	256	9.6	5-9	26 48.6	9-9	61.3	S 60	06 43	12 12	14 11	16 12	18 06	
31	643	23.6		16.6	265	29.2	5-9	26 45.2	10-2	61.3							
32	658	23.6		16.6	274	8.8	5-9	26 41.8	10-5	61.3							
33	673	23.6	N 19	16.2	283	28.4	5-9	26 38.4	10-8	61.3							
34	688	23.6		16.2	292	18.0	5-9	26 35.0	11-1	61.3							
35	703	23.6		16.2	301	7.6	5-9	26 31.6	11-4	61.3							
36	718	23.6		16.2	310	27.2	5-9	26 28.2	11-7	61.3							
37	733	23.6	N 19	15.8	319	16.8	5-9	26 24.8	12-0	61.3							
38	748	23.6		15.8	328	6.4	5-9	26 21.4	12-3	61.3							
39	763	23.6		15.8	337	26.0	5-9	26 18.0	12-6	61.3							
40	778	23.6		15.8	346	15.6	5-9	26 14.6	12-9	61.3							
41	793	23.6	N 19	15.4	355	5.2	5-9	26 11.2	13-2	61.3							
42	808	23.6		15.4	364	24.8	5-9	26 07.8	13-5	61.3							
43	823	23.6		15.4	373	14.4	5-9	26 04.4	13-8	61.3							
44	838	23.6		15.4	382	4.0	5-9	26 01.0	14-1	61.3							
45	853	23.6	N 19	15.0	391	23.6	5-9	25 57.6	14-4	61.3							
46	868	23.6		15.0	400	13.2	5-9	25 54.2	14-7	61.3							
47	883	23.6		15.0	409	2.8	5-9	25 50.8	15-0	61.3							
48	898	23.6		15.0	418	22.4	5-9	25 47.4	15-3	61.3							
49	913	23.6	N 19	14.6	427	12.0	5-9	25 44.0	15-6	61.3							
50	928	23.6		14.6	436	1.6	5-9	25 40.6	15-9	61.3							
51	943	23.6		14.6	445	21.2	5-9	25 37.2	16-2	61.3							
52	958	23.6		14.6	454	10.8	5-9	25 33.8	16-5	61.3							
53	973	23.6	N 19	14.2	463	0.4	5-9	25 30.4	16-8	61.3							
54	988	23.6		14.2	472	20.0	5-9	25 27.0	17-1	61.3							
55	1003	23.6		14.2	481	9.6	5-9	25 23.6	17-4	61.3							
56	1018	23.6		14.2	490	29.2	5-9	25 20.2	17-7	61.3							
57	1033	23.6	N 19	13.8	499	18.8	5-9	25 16.8	18-0	61.3							
58	1048	23.6		13.8	508	8.4	5-9	25 13.4	18-3	61.3							
59	1063	23.6		13.8	517	28.0	5-9	25 10.0	18-6	61.3							
60	1078	23.6		13.8	526	17.6	5-9	25 06.6	18-9	61.3							
61	1093	23.6	N 19	13.4	535	7.2	5-9	25 03.2	19-2	61.3							
62	1108	23.6		13.4	544	26.8	5-9	24 59.8	19-5	61.3							
63	1123	23.6		13.4	553	16.4	5-9	24 56.4	19-8	61.3							
64	1138	23.6		13.4	562	6.0	5-9	24 53.0	20-1	61.3							
65	1153	23.6	N 19	13.0	571	25.6	5-9	24 49.6	20-4	61.3							
66	1168	23.6		13.0	580	15.2	5-9	24 46.2	20-7	61.3							
67	1183	23.6		13.0	589	4.8	5-9	24 42.8	21-0	61.3							
68	1198	23.6		13.0	598	24.4	5-9	24 39.4	21-3	61.3							
69	1213	23.6	N 19	12.6	607	14.0	5-9	24 36.0	21-6	61.3							
70	1228	23.6		12.6	616	3.6	5-9	24 32.6	21-9	61.3							
71	1243	23.6		12.6	625	23.2	5-9	24 29.2	22-2	61.3							
72	1258	23.6		12.6	634	12.8	5-9	24 25.8	22-5	61.3							
73	1273	23.6	N 19	12.2	643	2.4	5-9	24 22.4	22-8	61.3							
74	1288	23.6		12.2	652	22.0	5-9	24 19.0	23-1	61.3							
75	1303	23.6		12.2	661	11.6	5-9	24 15.6	23-4	61.3							
76	1318	23.6		12.2	670	1.2	5-9	24 12.2	23-7	61.3	</						

G.M.T.		ARIES		VENUS -3-6		MARS -0-9		JUPITER -1-4		SATURN +0-5		STARS		
d	h	G.H.A.		G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
30 														

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise					
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	30	31	1	2	
d h		°	'	°	'	°	'	°	h m	h m	h m	h m	h m	h m	h m	h m	
30	00	178	24.5	N18	36.9	344	57.4	7.5	S17	43.5	14.6	60.8	22 14	21 39	21 11	20 42	
	01	193	24.5		36.3	359	23.7	7.3	17	28.9	14.6	60.8	21 58	21 33	21 12	20 51	
	02	208	24.6		35.7	13	50.0	7.5	17	14.3	14.8	60.8	21 45	21 28	21 12	20 57	
	03	223	24.6		35.1	28	16.5	7.6	16	59.5	14.8	60.8	21 34	21 23	21 13	21 03	
	04	238	24.6		34.5	42	43.1	7.7	16	44.7	14.9	60.8	21 24	21 19	21 14	21 09	
WEDNESDAY	05	253	24.6		33.9	57	09.8	7.8	16	29.8	15.0	60.7	21 16	21 15	21 14	21 13	
	06	268	24.7	N18	33.3	71	36.6	8.0	S16	14.8	15.1	60.7	21 09	21 12	21 15	21 17	
	07	283	24.7		32.7	86	03.6	8.0	15	59.7	15.2	60.7	21 03	21 10	21 15	21 21	
	08	298	24.7		32.0	100	30.6	8.2	15	44.5	15.3	60.7	20 57	21 07	21 16	21 24	
	09	313	24.7		31.4	114	57.8	8.3	15	29.2	15.3	60.6	20 52	21 05	21 16	21 27	
	10	328	24.8		30.8	129	25.1	8.5	15	13.9	15.5	60.6	20 47	21 03	21 16	21 29	
	11	343	24.8		30.2	143	52.6	8.5	14	58.4	15.5	60.6	20 37	20 58	21 17	21 35	
	12	358	24.8	N18	29.6	158	20.1	8.7	S14	42.9	15.5	60.6	20 28	20 54	21 18	21 40	
	13	13	24.8		29.0	172	47.8	8.7	14	27.4	15.7	60.5	20 21	20 51	21 18	21 45	
	14	28	24.9		28.4	187	15.5	8.9	14	11.7	15.7	60.5	20 15	20 48	21 19	21 48	
	15	43	24.9		27.8	201	43.4	9.0	13	56.0	15.8	60.5	20 03	20 43	21 20	21 55	
	16	58	24.9		27.2	216	11.4	9.1	13	40.2	15.8	60.5	19 53	20 38	21 20	22 01	
	17	73	25.0		26.6	230	39.5	9.2	13	24.4	15.9	60.4	19 44	20 34	21 21	22 07	
	18	88	25.0	N18	26.0	245	07.7	9.4	S13	08.5	16.0	60.4	19 34	20 30	21 22	22 12	
	19	103	25.0		25.4	259	36.1	9.4	12	52.5	16.0	60.4	19 24	20 25	21 23	22 18	
	20	118	25.0		24.8	274	04.5	9.5	12	36.5	16.1	60.3	19 13	20 20	21 24	22 25	
	21	133	25.1		24.2	288	33.0	9.7	12	20.4	16.1	60.3	19 06	20 17	21 24	22 29	
	22	148	25.1		23.6	303	01.7	9.7	12	04.3	16.2	60.3	18 58	20 14	21 25	22 34	
	23	163	25.1		22.9	317	30.4	9.9	11	48.1	16.2	60.2	18 49	20 10	21 26	22 39	
	31	00	178	25.2	N18	22.3	331	59.3	9.9	S11	31.9	16.3	60.2	18 38	20 05	21 27	22 46
	01	193	25.2		21.7	346	28.2	10.1	11	15.6	16.3	60.2	18 33	20 03	21 27	22 49	
	02	208	25.2		21.1	0	57.3	10.1	10	59.3	16.4	60.1	18 27	20 00	21 28	22 52	
	03	223	25.2		20.5	15	26.4	10.3	10	42.9	16.4	60.1	18 21	19 57	21 28	22 56	
	04	238	25.3		19.9	29	55.7	10.3	10	26.5	16.5	60.1	18 14	19 54	21 29	23 00	
	05	253	25.3		19.3	44	25.0	10.4	10	10.0	16.4	60.1	18 06	19 51	21 30	23 05	
THURSDAY	06	268	25.3	N18	18.7	58	54.4	10.6	S	9	53.6	16.6	60.0				
	07	283	25.4		18.0	73	24.0	10.6	9	37.0	16.5	60.0					
	08	298	25.4		17.4	87	53.6	10.7	9	20.5	16.6	60.0					
	09	313	25.4		16.8	102	23.3	10.8	9	03.9	16.6	59.9					
	10	328	25.5		16.2	116	53.1	10.9	8	47.3	16.6	59.9					
	11	343	25.5		15.6	131	23.0	11.0	8	30.7	16.7	59.9					
	12	358	25.5	N18	15.0	145	53.0	11.0	S	8	14.0	16.7	59.8				
	13	13	25.6		14.3	160	23.0	11.2	7	57.3	16.7	59.8	03 17	06 08	08 27	10 35	
	14	28	25.6		13.7	174	53.2	11.2	7	40.6	16.7	59.7	03 53	06 22	08 30	10 30	
	15	43	25.6		13.1	189	23.4	11.3	7	23.9	16.7	59.7	04 18	06 33	08 33	10 25	
	16	58	25.7		12.5	203	53.7	11.4	7	07.2	16.8	59.7	04 38	06 42	08 35	10 21	
	17	73	25.7		11.9	218	24.1	11.5	6	50.4	16.8	59.6	04 54	06 50	08 37	10 18	
	18	88	25.7	N18	11.2	232	54.6	11.5	S	6	33.6	16.8	59.6	05 07	06 57	08 38	10 15
	19	103	25.8		10.6	247	25.1	11.7	6	16.8	16.7	59.6	05 18	07 02	08 40	10 13	
	20	118	25.8		10.0	261	55.8	11.7	6	00.1	16.9	59.5	05 28	07 07	08 41	10 10	
	21	133	25.8		09.4	276	26.5	11.7	5	43.2	16.8	59.5	05 36	07 12	08 42	10 08	
	22	148	25.9		08.8	290	57.2	11.9	5	26.4	16.8	59.5	05 44	07 16	08 43	10 07	
	23	163	25.9		08.1	305	28.1	11.9	5	09.6	16.8	59.4	05 51	07 20	08 44	10 05	
	I 00	178	25.9	N18	07.5	319	59.0	12.0	S	4	52.8	16.8	59.4	06 05	07 28	08 46	10 01
	01	193	26.0		06.9	334	30.0	12.0	4	36.0	16.8	59.3	06 17	07 35	08 48	09 58	
	02	208	26.0		06.3	349	01.0	12.1	4	19.2	16.9	59.3	06 27	07 40	08 50	09 56	
	03	223	26.1		05.6	3	32.1	12.2	4	02.3	16.8	59.3	06 36	07 45	08 51	09 53	
	04	238	26.1		05.0	18	03.3	12.2	3	45.5	16.8	59.2	06 51	07 54	08 53	09 50	
	05	253	26.1		04.4	32	34.5	12.3	3	28.7	16.8	59.2	07 04	08 08	08 57	09 46	
	06	268	26.2	N18	03.8	47	05.8	12.4	S	3	11.9	16.8	59.2	07 16	08 08	08 57	09 43
FRIDAY	07	283	26.2		03.1	61	37.2	12.4	2	55.1	16.8	59.1	07 28	08 15	08 58	09 40	
	08	298	26.2		02.5	76	08.6	12.5	2	38.3	16.8	59.1	07 40	08 30	09 02	09 32	
	09	313	26.3		01.9	90	40.1	12.5	2	21.5	16.8	59.0	07 54	08 35	09 03	09 30	
	10	328	26.3		01.2	105	11.6	12.6	2	04.7	16.7	59.0	08 03	08 40	09 05	09 27	
	11	343	26.3		00.6	119	43.2	12.6	1	48.0	16.8	59.0	08 12	08 46	09 06	09 25	
	12	358	26.4	N18	00.0	134	14.8	12.7	S	1	31.2	16.7	58.9	08 23	08 46	09 08	09 21
	13	13	26.4		17 59.4	148	46.5	12.8	1	14.5	16.7	58.9	08 42	08 56	09 09	09 20	
	14	28	26.5		58.7	163	18.3	12.7	0	57.8	16.7	58.8	08 48	09 00	09 09	09 18	
	15	43	26.5		58.1	177	50.0	12.9	0	41.1	16.7	58.8	08 56	09 04	09 10	09 16	
	16	58	26.5		57.5	192	21.9	12.9	0	24.4	16.6	58.8	09 04	09 08	09 11	09 14	
	17	73	26.6		56.8	206	53.8	12.9	S	0	07.8	16.7	58.7	09 13	09 13	09 12	09 11
	18	88	26.6	N17	56.2	221	25.7	12.9	N	0	08.9	16.6	58.7				
	19	103	26.7		55.6	235	57.6	13.1	0	25.5	16.5	58.6					
	20	118	26.7		54.9	250	29.7	13.0	0	42.0	16.6	58.6					
	21	133	26.7		54.3	265	01.7	13.1	0	58.6	16.5	58.6					
	22	148	26.8		53.7	279	33.8	13.1	1	15.1	16.5	58.5					
	23	163	26.8		53.0	294	05.9	13.2	1	31.6	16.5	58.5					
	S.D. 15.8		<i>d</i>	0.6	S.D. 16.5			16.3		16.1							
	Day	Eqn. of Time		Mer. Pass.	MOON												
		00h	12h		Mer. Upper	Pass. Lower	Age	Phase									
30	m s	m s	h m	h m	h m	d											
31	06 22	06 21	12 06	01 03	13 30	16											
1	06 19	06 18	12 06	01 56	14 21	17											
1	06 16	06 15	12 06	02 45	15 09	18											

G.M.T.		ARIES		VENUS -3.6		MARS -0.9		JUPITER -1.4		SATURN +0.5		STARS			
d h		G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
2	00	310 24.7	221 54.5	N 21 32.4	67 19.0	S 24 34.3	127 30.7	N 0 02.2	273 21.5	N 12 01.9			Acamar	315 43.3	S 40 25.2
	01	325 27.2	236 53.9	32.6	82 20.7	34.4	142 32.8	02.0	288 23.8	02.0			Achernar	335 50.8	S 57 23.0
	02	340 29.6	251 53.4	32.8	97 22.3	34.5	157 34.9	01.8	303 26.2	02.0			Acrux	173 47.1	S 62 56.1
	03	355 32.1	266 52.8	32.9	112 24.0	34.6	172 37.0	01.7	318 28.6	02.0			Adhara	255 38.9	S 28 55.5
	04	10 34.6	281 52.2	33.1	127 25.6	34.8	187 39.1	01.5	333 31.0	02.0			Aldebaran	291 27.6	N 16 27.1
	05	25 37.0	296 51.6	33.2	142 27.2	34.9	202 41.1	01.3	348 33.4	02.0					
	06	40 39.5	311 51.1	N 21 33.4	157 28.9	S 24 35.0	217 43.2	N 0 01.1	3 35.7	N 12 02.0			Alioth	166 49.6	N 56 07.7
	07	55 42.0	326 50.5	33.5	172 30.5	35.1	232 45.3	01.0	18 38.1	02.1			Alkaid	153 24.8	N 49 28.1
	08	70 44.4	341 49.9	33.7	187 32.2	35.3	247 47.4	00.8	33 40.5	02.1			Al Na'ir	28 24.5	S 47 06.4
	09	85 46.9	356 49.3	33.8	202 33.8	35.4	262 49.5	00.6	48 42.9	02.1			Alnilam	276 20.2	S 1 13.0
	10	100 49.4	11 48.7	34.0	217 35.5	35.5	277 51.6	00.5	63 45.3	02.1			Alphard	218 28.9	S 8 31.4
	11	115 51.8	26 48.2	34.1	232 37.1	35.6	292 53.7	00.3	78 47.6	02.1					
	12	130 54.3	41 47.6	N 21 34.3	247 38.7	S 24 35.8	307 55.7	N 0 00.1	93 50.0	N 12 02.1			Alphecca	126 38.9	N 26 49.1
	13	145 56.7	56 47.0	34.4	262 40.4	35.9	322 57.8	00.0	108 52.4	02.2			Alpheratz	358 17.7	N 28 55.3
	14	160 59.2	71 46.4	34.6	277 42.0	36.0	337 59.9	S 0 00.2	123 54.8	02.2			Altair	62 40.2	N 8 47.2
	15	176 01.7	86 45.9	34.7	292 43.6	36.1	353 02.0	00.4	138 57.2	02.2			Ankaa	353 47.8	S 42 27.9
	16	191 04.1	101 45.3	34.8	307 45.3	36.3	8 04.1	00.6	153 59.6	02.2			Antares	113 06.7	S 26 22.1
	17	206 06.6	116 44.7	35.0	322 46.9	36.4	23 06.2	00.7	169 01.9	02.2					
	18	221 09.1	131 44.1	N 21 35.1	337 48.5	S 24 36.5	38 08.2	S 0 00.9	184 04.3	N 12 02.2			Arcturus	146 25.8	N 19 20.5
	19	236 11.5	146 43.5	35.3	352 50.1	36.6	53 10.3	01.1	199 06.7	02.3			Atria	108 38.1	S 68 58.8
	20	251 14.0	161 43.0	35.4	7 51.8	36.7	68 12.4	01.2	214 09.1	02.3			Avior	234 32.4	S 59 24.5
	21	266 16.5	176 42.4	35.5	22 53.4	36.9	83 14.5	01.4	229 11.5	02.3			Bellatrix	279 07.7	N 6 19.6
	22	281 18.9	191 41.8	35.7	37 55.0	37.0	98 16.6	01.6	244 13.8	02.3			Betelgeuse	271 37.3	N 7 24.4
	23	296 21.4	206 41.2	35.8	52 56.6	37.1	113 18.7	01.8	259 16.2	02.3					
3	00	311 23.8	221 40.6	N 21 36.0	67 58.3	S 24 37.2	128 20.7	S 0 01.9	274 18.6	N 12 02.3			Canopus	264 11.3	S 52 40.4
	01	326 26.3	236 40.1	36.1	82 59.9	37.4	143 22.8	02.1	289 21.0	02.3			Capella	281 23.7	N 45 58.1
	02	341 28.8	251 39.5	36.2	98 01.5	37.5	158 24.9	02.3	304 23.4	02.4			Deneb	49 53.7	N 45 10.2
	03	356 31.2	266 38.9	36.4	113 03.1	37.6	173 27.0	02.5	319 25.8	02.4			Denebola	183 07.5	N 14 44.6
	04	11 33.7	281 38.3	36.5	128 04.7	37.8	188 29.1	02.6	334 28.2	02.4			Diphda	349 28.8	S 18 09.0
	05	26 36.2	296 37.7	36.6	143 06.4	37.9	203 31.1	02.8	349 30.5	02.4					
	06	41 38.6	311 37.1	N 21 36.7	158 08.0	S 24 38.0	218 33.2	S 0 03.0	4 32.9	N 12 02.4			Dubhe	194 32.3	N 61 55.2
	07	56 41.1	326 36.6	36.9	173 09.6	38.1	233 35.3	03.1	19 35.3	02.4			Elnath	278 54.7	N 28 35.1
	08	71 43.6	341 36.0	37.0	188 11.2	38.3	248 37.4	03.3	34 37.7	02.4			Eltanin	91 01.1	N 51 29.6
	09	86 46.0	356 35.4	37.1	203 12.8	38.4	263 39.5	03.5	49 40.1	02.5			Enif	34 19.3	N 9 44.1
	10	101 48.5	11 34.8	37.3	218 14.4	38.5	278 41.6	03.7	64 42.5	02.5			Fomalhaut	16 00.0	S 29 46.9
	11	116 50.9	26 34.2	37.4	233 16.0	38.6	293 43.6	03.8	79 44.8	02.5					
	12	131 53.4	41 33.6	N 21 37.5	248 17.6	S 24 38.8	308 45.7	S 0 04.0	94 47.2	N 12 02.5			Gacrux	172 38.5	S 56 56.8
	13	146 55.9	56 33.0	37.6	263 19.2	38.9	323 47.8	04.2	109 49.6	02.5			Gienah	176 26.6	S 17 22.4
	14	161 58.3	71 32.5	37.8	278 20.9	39.0	338 49.9	04.4	124 52.0	02.5			Hadar	149 35.4	S 60 14.0
	15	177 00.8	86 31.9	37.9	293 22.5	39.1	353 52.0	04.5	139 54.4	02.6			Hamal	328 38.1	N 23 19.2
	16	192 03.3	101 31.3	38.0	308 24.1	39.3	8 54.0	04.7	154 56.8	02.6			Kaus Aust.	84 27.3	S 34 24.2
	17	207 05.7	116 30.7	38.1	323 25.7	39.4	23 56.1	04.9	169 59.2	02.6					
	18	222 08.2	131 30.1	N 21 38.2	338 27.3	S 24 39.5	38 58.2	S 0 05.0	185 01.6	N 12 02.6			Kochab	137 17.9	N 74 17.0
	19	237 10.7	146 29.5	38.4	353 28.9	39.6	54 00.3	05.2	200 03.9	02.6			Markab	14 11.1	N 15 02.5
	20	252 13.1	161 28.9	38.5	8 30.5	39.8	69 02.4	05.4	215 06.3	02.6			Menkar	314 49.7	N 3 58.5
	21	267 15.6	176 28.3	38.6	23 32.1	39.9	84 04.4	05.6	230 08.7	02.6			Menkent	148 46.8	S 36 13.5
	22	282 18.1	191 27.8	38.7	38 33.7	40.0	99 06.5	05.7	245 11.1	02.6			Miaplacidus	221 48.1	S 69 35.4
	23	297 20.5	206 27.2	38.8	53 35.3	40.1	114 08.6	05.9	260 13.5	02.7					
4	00	312 23.0	221 26.6	N 21 38.9	68 36.9	S 24 40.3	129 10.7	S 0 06.1	275 15.9	N 12 02.7			Mirfak	309 28.0	N 49 45.2
	01	327 25.4	236 26.0	39.0	83 38.5	40.4	144 12.8	06.3	290 18.3	02.7			Nunki	76 38.9	S 26 20.3
	02	342 27.9	251 25.4	39.2	98 40.0	40.5	159 14.8	06.4	305 20.7	02.7			Peacock	54 10.4	S 56 50.1
	03	357 30.4	266 24.8	39.3	113 41.6	40.7	174 16.9	06.6	320 23.0	02.7			Pollux	244 08.4	N 28 06.2
	04	12 32.8	281 24.2	39.4	128 43.2	40.8	189 19.0	06.8	335 25.4	02.7			Procyon	245 34.6	N 5 18.4
	05	27 35.3	296 23.6	39.5	143 44.8	40.9	204 21.1	07.0	350 27.8	02.7					
	06	42 37.8	311 23.0	N 21 39.6	158 46.4	S 24 41.0	219 23.1	S 0 07.1	5 30.2	N 12 02.8			Rasalhague	96 36.9	N 12 34.8
	07	57 40.2	326 22.4	39.7	173 48.0	41.2	234 25.2	07.3	20 32.6	02.8			Regulus	208 18.9	N 12 07.2
	08	72 42.7	341 21.8	39.8	188 49.6	41.3	249 27.3	07.5	35 35.0	02.8			Rigel	281 44.0	S 8 13.9
	09	87 45.2	356 21.3	39.9	203 51.2	41.4	264 29.4	07.6	50 37.4	02.8			Rigel Kent.	140 37.2	S 60 42.9
	10	102 47.6	11 20.7	40.0	218 52.8	41.5	279 31.5	07.8	65 39.8	02.8			Sabik	102 50.3	S 15 41.4
	11	117 50.1	26 20.1	40.1	233 54.3	41.7	294 33.5	08.0	80 42.2	02.8					
	12	132 52.6	41 19.5	N 21 40.2	248 55.9	S 24 41.8	309 35.6	S 0 08.2	95 44.5	N 12 02.8			Schedar	350 18.4	N 56 22.1
	13	147 55.0	56 18.9	40.3	263 57.5	41.9	324 37.7	08.3	110 46.9	02.9			Shaula	97 06.6	S 37 05.2
	14	162 57.5	71 18.3	40.4	278 59.1	42.1	339 39.8	08.5	125 49.3	02.9			Sirius	259 03.2	S 16 40.1
	15	177 59.9	86 17.7	40.5	294 00.7	42.2	354 41.8	08.7	140 51.7	02.9			Spica	159 06.3	S 11 00.2
	16	193 02.4	101 17.1	40.6	309 02.2	42.3	9 43.9	08.9	155 54.1	02.9			Suhail	223 17.4	S 43 18.4
	17	208 04.9	116 16.5	40.7	324 03.8	42.4	24 46.0	09.0	170 56.5	02.9					
	18	223 07.3	131 15.9	N 21 40.8	339 05.4	S 24 42.6	39 48.1	S 0 09.2	185 58.9	N 12 02.9			Vega	81 01.0	N 38 45.3
	19	238 09.8	146 15.3	40.9	354 07.0	42.7	54 50.2	09.4	201 01.3	02.9			Zuben'ubi	137 42.1	S 15 55.1
	20	253 12.3	161 14.7	41.0	9 08.5	42.8	69 52.2	09.6	216 03.7	02.9					
	21	268 14.7	176 14.1	41.1	24 10.1	43.0	84 54.3	09.7	231 06.1	03.0					
	22	283 17.2	191 13.5	41.2	39 11.7	43.1	99 56.4	09.9	246 08.4	03.0					
	23	298 19.7	206 12.9	41.3	54 13.2	43.2	114 58.5	10.1	261 10.8	03.0					
Mer. Pass.		h m		v -0.6 d 0.1		v 1.6 d 0.1		v 2.1 d 0.2		v 2.4 d 0.0					
		3 13.9													
												</			

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise							
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.		Naut.	Civil		2	3	4	5				
d	h	°	'	°	'	°	'	'	°	h	m	h	m	h	m	h	m	h	m	
200	01	178	26.9	N17	52.4	308	38.1	13.2	N	72	□	□	□	20 32	19 46	18 03	□			
	02	193	26.9		51.7	323	10.3	13.2		70	///	///	01 41	20 42	20 09	19 15	□			
	03	208	26.9		51.1	337	42.5	13.3		68	///	///	02 24	20 51	20 27	19 53	□			
	04	223	27.0		50.5	352	14.8	13.2		66	///	00 49	02 52	20 57	20 41	20 20	19 43			
	05	238	27.0		49.8	6	47.0	13.4		64	///	01 49	03 13	21 03	20 53	20 41	20 24			
S A T U R D A Y	06	253	27.1		49.2	21	19.4	13.3		62	///	02 22	03 30	21 09	21 03	20 58	20 52			
	07	268	27.1	N17	48.6	35	51.7	13.4	N	60	00 44	02 45	03 45	21 13	21 12	21 12	21 13			
	08	283	27.2		47.9	50	24.1	13.4		58	01 39	03 04	03 57	21 17	21 20	21 24	21 31			
	09	298	27.2		47.3	64	56.5	13.4		56	02 09	03 19	04 07	21 21	21 27	21 35	21 46			
	10	313	27.3		46.6	79	28.9	13.5		54	02 31	03 32	04 16	21 24	21 33	21 44	21 59			
R I D E Y	11	328	27.3		46.0	94	01.4	13.4		52	02 48	03 43	04 24	21 27	21 39	21 52	22 10			
	12	343	27.3		45.4	108	33.8	13.5		50	03 03	03 53	04 32	21 29	21 44	22 00	22 20			
	13	358	27.4	N17	44.7	123	06.3	13.5	N	45	03 31	04 14	04 47	21 35	21 55	22 16	22 42			
	14	13	27.4		44.1	137	38.8	13.5		N 40	03 53	04 30	05 00	21 40	22 04	22 30	22 59			
	15	28	27.5		43.4	152	11.3	13.6		35	04 09	04 43	05 10	21 45	22 12	22 41	23 14			
	16	43	27.5		42.8	166	43.9	13.5		30	04 23	04 54	05 20	21 48	22 19	22 51	23 26			
	17	58	27.6		42.1	181	16.4	13.6		20	04 45	05 12	05 36	21 55	22 31	23 08	23 48			
	18	73	27.6		41.5	195	49.0	13.6		N 10	05 02	05 28	05 50	22 01	22 42	23 23	24 07			
	19	88	27.7	N17	40.9	210	21.6	13.6	N	0	05 16	05 41	06 03	22 07	22 52	23 38	24 25			
	20	103	27.7		40.2	224	54.2	13.6		S 10	05 28	05 53	06 15	22 12	23 02	23 52	24 43			
	21	118	27.8		39.6	239	26.8	13.6		20	05 39	06 06	06 29	22 18	23 13	24 08	00 08			
	22	133	27.8		38.9	253	59.4	13.6		30	05 50	06 19	06 44	22 25	23 26	24 26	00 26			
	23	148	27.8		38.3	268	32.0	13.6		35	05 56	06 26	06 53	22 29	23 33	24 36	00 36			
	24	163	27.9		37.6	283	04.6	13.7		40	06 02	06 34	07 03	22 34	23 42	24 48	00 48			
	25	178	27.9	N17	37.0	297	37.3	13.6	N	45	06 08	06 43	07 15	22 39	23 52	25 03	01 03			
300	01	193	28.0		36.3	312	09.9	13.6		S 50	06 15	06 54	07 29	22 46	24 04	00 04	01 20			
	02	208	28.0		35.7	326	42.5	13.7		52	06 18	06 59	07 35	22 49	24 09	00 09	01 29			
	03	223	28.1		35.0	341	15.2	13.6		54	06 21	07 04	07 43	22 52	24 15	00 15	01 38			
	04	238	28.1		34.4	355	47.8	13.7		56	06 24	07 09	07 51	22 56	24 22	00 22	01 48			
	05	253	28.2		33.7	10	20.5	13.6		58	06 28	07 16	08 00	23 00	24 30	00 30	02 01			
	06	268	28.2	N17	33.1	24	53.1	13.6	N	S 60	06 32	07 23	08 11	23 05	24 39	00 39	02 15			
	07	283	28.3		32.4	39	25.7	13.7												
	08	298	28.3		31.8	53	58.4	13.6		Lat.	Sun-set	Twilight		Moonset						
	09	313	28.4		31.1	68	31.0	13.6				Civil	Naut.	2	3	4	5			
	10	328	28.4		30.5	83	03.6	13.6			°	h	m	h	m	h	m	h	m	
D A Y	11	343	28.5		29.8	97	36.2	13.6		N 72	□	□	□	10 42	13 05	16 26	□			
	12	358	28.5	N17	29.2	112	08.8	13.6	N11	N 70	22 25	///	///	10 35	12 45	15 15	□			
	13	13	28.6		28.5	126	41.4	13.6		68	21 45	///	///	10 30	12 29	14 39	□			
	14	28	28.6		27.8	141	14.0	13.6		66	21 17	23 12	///	10 25	12 17	14 13	16 28			
	15	43	28.7		27.2	155	46.6	13.5		64	20 57	22 18	///	10 21	12 06	13 54	15 49			
	16	58	28.7		26.5	170	19.1	13.6		62	20 40	21 47	///	10 18	11 57	13 38	15 22			
	17	73	28.8		25.9	184	51.7	13.5		60	20 26	21 25	23 17	10 15	11 50	13 24	15 01			
	18	88	28.8	N17	25.2	199	24.2	13.6	N12	N 58	20 14	21 06	22 29	10 13	11 43	13 13	14 44			
	19	103	28.9		24.6	213	56.8	13.5		56	20 04	20 51	22 01	10 10	11 37	13 03	14 29			
	20	118	28.9		23.9	228	29.3	13.4		54	19 55	20 39	21 39	10 08	11 32	12 55	14 17			
	21	133	29.0		23.2	243	01.7	13.5		52	19 47	20 28	21 22	10 07	11 27	12 47	14 06			
	22	148	29.1		22.6	257	34.2	13.5		50	19 40	20 18	21 08	10 05	11 23	12 40	13 56			
	23	163	29.1		21.9	272	06.7	13.4		45	19 24	19 58	20 40	10 01	11 14	12 26	13 36			
	24	178	29.2	N17	21.3	286	39.1	13.4	N14	N 40	19 12	19 42	20 19	09 58	11 07	12 14	13 20			
	25	193	29.2		20.6	301	11.5	13.4		35	19 01	19 29	20 02	09 56	11 00	12 03	13 06			
M O N D A Y	01	208	29.3		19.9	315	43.9	13.4		30	18 52	19 18	19 49	09 53	10 54	11 55	12 54			
	02	223	29.3		19.3	330	16.3	13.3		20	18 36	18 59	19 27	09 50	10 45	11 39	12 34			
	03	238	29.4		18.6	344	48.6	13.3		N 10	18 22	18 44	19 10	09 46	10 36	11 26	12 17			
	04	253	29.4		18.0	359	20.9	13.3		0	18 10	18 31	18 56	09 43	10 28	11 14	12 00			
	05	268	29.5	N17	17.3	13	53.2	13.3	N15	S 10	17 57	18 19	18 44	09 40	10 20	11 01	11 44			
	06	283	29.5		16.6	28	25.5	13.2		20	17 44	18 07	18 33	09 36	10 12	10 48	11 27			
	07	298	29.6		16.0	42	57.7	13.2		30	17 29	17 54	18 22	09 32	10 02	10 33	11 07			
	08	313	29.7		15.3	57	29.9	13.2		35	17 20	17 46	18 17	09 30	09 57	10 25	10 56			
	09	328	29.7		14.6	72	02.1	13.2		40	17 10	17 39	18 11	09 27	09 50	10 15	10 42			
	10	343	29.8		14.0	86	34.3	13.1		45	16 58	17 30	18 05	09 25	09 43	10 04	10 27			
	11	358	29.8	N17	13.3	101	06.4	13.1	N16	S 50	16 44	17 19	17 58	09 21	09 35	09 50	10 08			
	12	13	29.9		12.6	115	38.5	13.1		52	16 37	17 14	17 55	09 20	09 31	09 43	09 59			
	13	28	29.9		12.0	130	10.6	13.0		54	16 30	17 09	17 52	09 18	09 26	09 36	09 49			
	14	43	30.0		11.3	144	42.6	13.0		56	16 22	17 04	17 49	09 16	09 22	09 29	09 38			
	15	58	30.1		10.6	159	14.6	13.0		58	16 13	16 57	17 45	09 14	09 16	09 20	09 25			
	16	73	30.1		10.0	173	46.6	12.9		S 60	16 02	16 50	17 41	09 11	09 10	09 10	09 10			
	17	88	30.2	N17	09.3	188	18.5	12.9	N17											
	18	103	30.2		08.6	202	50.4	12.9		Day	Eqn. of Time	Mer. Pass.	MOON							
	19	118	30.3		08.0	217	22.3	12.8			00 ^h	12 ^h	Mer. Upper	Pass. Lower	Age	Phase				
	20	133	30.4		07.3	231	54.1	12.8			m s	m s	h m	h m	h m	d				
	21	148	30.4		06.6	246	25.9	12.7		2	06 13	06 11	12 06	03 32	15 55	19	☉			
	22	163	30.5		06.0	260	57.6	12.7		3	06 08	06 06	12 06	04 17	16 40	20				
	23									4	06 03	06 01	12 06	05 03	17 26	21				
		S.D. 15-8	<i>d</i>	0-7		S.D. 15-8		15-5	15-3											

G.M.T.		ARIES		VENUS -3-6		MARS -0-8		JUPITER -1-3		SATURN +0-5		STARS		
		G.H.A.	G.H.A. Dec.	G.H.A. Dec.	G.H.A. Dec.	G.H.A. Dec.	G.H.A. Dec.	G.H.A. Dec.	Name	S.H.A.	Dec.			
5	00	313 22-1	221 12-3 N 21 41-4	69 14-8 S 24 43-3	130 00-5 S 0 10-3	276 13-2 N 12 03-0	Acamar	315 43-3	S 40 25-1					
	01	328 24-6	236 11-7 41-5	84 16-4 43-5	145 02-6 10-4	291 15-6 03-0	Achernar	335 50-8	S 57 23-0					
	02	343 27-1	251 11-1 41-5	99 18-0 43-6	160 04-7 10-6	306 18-0 03-0	Acruz	173 47-2	S 62 56-1					
	03	358 29-5	266 10-5 41-6	114 19-5 43-7	175 06-8 10-8	321 20-4 03-0	Adhara	255 38-9	S 28 55-5					
	04	13 32-0	281 09-9 41-7	129 21-1 43-8	190 08-8 11-0	336 22-8 03-0	Aldebaran	291 27-5	N 16 27-1					
TUESDAY	05	28 34-4	296 09-3 41-8	144 22-6 44-0	205 10-9 11-1	351 25-2 03-1								
	06	43 36-9	311 08-7 N 21 41-9	159 24-2 S 24 44-1	220 13-0 S 0 11-3	6 27-6 N 12 03-1	Alioth	166 49-6	N 56 07-7					
	07	58 39-4	326 08-1 42-0	174 25-8 44-2	235 15-1 11-5	21 30-0 03-1	Alkaid	153 24-8	N 49 28-1					
	08	73 41-8	341 07-5 42-1	189 27-3 44-4	250 17-1 11-7	36 32-4 03-1	Al Na'ir	28 24-5	S 47 06-4					
	09	88 44-3	356 06-9 42-1	204 28-9 44-5	265 19-2 11-8	51 34-8 03-1	Anilam	276 20-1	S 1 12-9					
WEDNESDAY	10	103 46-8	11 06-3 42-2	219 30-4 44-6	280 21-3 12-0	66 37-2 03-1	Alphard	218 28-9	S 8 31-4					
	11	118 49-2	26 05-7 42-3	234 32-0 44-7	295 23-4 12-2	81 39-6 03-1								
	12	133 51-7	41 05-1 N 21 42-4	249 33-6 S 24 44-9	310 25-4 S 0 12-4	96 41-9 N 12 03-1	Alphecca	126 38-9	N 26 49-1					
	13	148 54-2	56 04-5 42-5	264 35-1 45-0	325 27-5 12-5	111 44-3 03-1	Alpheratz	358 17-6	N 28 55-3					
	14	163 56-6	71 03-9 42-5	279 36-7 45-1	340 29-6 12-7	126 46-7 03-2	Altair	62 40-2	N 8 47-2					
THURSDAY	15	178 59-1	86 03-3 42-6	294 38-2 45-3	355 31-7 12-9	141 49-1 03-2	Ankaa	353 47-8	S 42 28-0					
	16	194 01-6	101 02-7 42-7	309 39-8 45-4	10 33-7 13-1	156 51-5 03-2	Antares	113 06-7	S 26 22-1					
	17	209 04-0	116 02-1 42-8	324 41-3 45-5	25 35-8 13-2	171 53-9 03-2								
	18	224 06-5	131 01-5 N 21 42-8	339 42-9 S 24 45-7	40 37-9 S 0 13-4	186 56-3 N 12 03-2	Arcturus	146 25-9	N 19 20-5					
	19	239 08-9	146 00-9 42-9	354 44-4 45-8	55 40-0 13-6	201 58-7 03-2	Atria	108 38-1	S 68 58-8					
FRIDAY	20	254 11-4	161 00-3 43-0	9 46-0 45-9	70 42-0 13-8	217 01-1 03-2	Avior	234 32-4	S 59 24-5					
	21	269 13-9	175 59-7 43-0	24 47-5 46-0	85 44-1 13-9	232 03-5 03-2	Bellatrix	279 07-7	N 6 19-6					
	22	284 16-3	190 59-1 43-1	39 49-1 46-2	100 46-2 14-1	247 05-9 03-3	Betelgeuse	271 37-3	N 7 24-4					
	23	299 18-8	205 58-5 43-2	54 50-6 46-3	115 48-2 14-3	262 08-3 03-3								
	SATURDAY	00	314 21-3	220 57-9 N 21 43-3	69 52-2 S 24 46-4	130 50-3 S 0 14-5	277 10-7 N 12 03-3	Canopus	264 11-3	S 52 40-3				
01		329 23-7	235 57-3 43-3	84 53-7 46-6	145 52-4 14-6	292 13-1 03-3	Capella	281 23-6	N 45 58-1					
02		344 26-2	250 56-7 43-4	99 55-2 46-7	160 54-5 14-8	307 15-5 03-3	Deneb	49 53-7	N 45 10-2					
03		359 28-7	265 56-1 43-5	114 56-8 46-8	175 56-5 15-0	322 17-9 03-3	Denebola	183 07-5	N 14 44-6					
04		14 31-1	280 55-5 43-5	129 58-3 46-9	190 58-6 15-2	337 20-3 03-3	Diphda	349 28-8	S 18 09-0					
SUNDAY	05	29 33-6	295 54-9 43-6	144 59-9 47-1	206 00-7 15-3	352 22-7 03-3								
	06	44 36-1	310 54-3 N 21 43-6	160 01-4 S 24 47-2	221 02-7 S 0 15-5	7 25-1 N 12 03-3	Dubhe	194 32-3	N 61 55-1					
	07	59 38-5	325 53-6 43-7	175 02-9 47-3	236 04-8 15-7	22 27-5 03-4	Elnath	278 54-7	N 28 35-1					
	08	74 41-0	340 53-0 43-8	190 04-5 47-5	251 06-9 15-9	37 29-9 03-4	Eltanin	91 01-1	N 51 29-6					
	09	89 43-4	355 52-4 43-8	205 06-0 47-6	266 09-0 16-1	52 32-3 03-4	Enif	34 19-3	N 9 44-1					
MONDAY	10	104 45-9	10 51-8 43-9	220 07-5 47-7	281 11-0 16-2	67 34-7 03-4	Fomalhaut	15 59-9	S 29 46-9					
	11	119 48-4	25 51-2 43-9	235 09-1 47-9	296 13-1 16-4	82 37-1 03-4								
	12	134 50-8	40 50-6 N 21 44-0	250 10-6 S 24 48-0	311 15-2 S 0 16-6	97 39-5 N 12 03-4	Gacrux	172 38-5	S 56 56-8					
	13	149 53-3	55 50-0 44-0	265 12-1 48-1	326 17-2 16-8	112 41-9 03-4	Gienah	176 26-6	S 17 22-4					
	14	164 55-8	70 49-4 44-1	280 13-7 48-2	341 19-3 16-9	127 44-3 03-4	Hadar	149 35-4	S 60 14-0					
TUESDAY	15	179 58-2	85 48-8 44-2	295 15-2 48-4	356 21-4 17-1	142 46-7 03-4	Hamal	328 38-1	N 23 19-2					
	16	195 00-7	100 48-2 44-2	310 16-7 48-5	11 23-5 17-3	157 49-1 03-4	Kaus Aust.	84 27-3	S 34 24-2					
	17	210 03-2	115 47-6 44-3	325 18-2 48-6	26 25-5 17-5	172 51-5 03-5								
	18	225 05-6	130 46-9 N 21 44-3	340 19-8 S 24 48-8	41 27-6 S 0 17-6	187 53-9 N 12 03-5	Kochab	137 18-0	N 74 17-0					
	19	240 08-1	145 46-3 44-4	355 21-3 48-9	56 29-7 17-8	202 56-3 03-5	Markab	14 11-1	N 15 02-5					
WEDNESDAY	20	255 10-6	160 45-7 44-4	10 22-8 49-0	71 31-7 18-0	217 58-7 03-5	Menkar	314 49-7	N 3 58-5					
	21	270 13-0	175 45-1 44-5	25 24-3 49-2	86 33-8 18-2	233 01-1 03-5	Menkent	148 46-8	S 36 13-5					
	22	285 15-5	190 44-5 44-5	40 25-8 49-3	101 35-9 18-3	248 03-5 03-5	Miaplacidus	221 48-1	S 69 35-4					
	23	300 17-9	205 43-9 44-6	55 27-4 49-4	116 37-9 18-5	263 05-9 03-5								
	THURSDAY	00	315 20-4	220 43-3 N 21 44-6	70 28-9 S 24 49-5	131 40-0 S 0 18-7	278 08-3 N 12 03-5	Mirfak	309 28-0	N 49 45-2				
01		330 22-9	235 42-7 44-6	85 30-4 49-7	146 42-1 18-9	293 10-7 03-5	Nunki	76 38-9	S 26 20-3					
02		345 25-3	250 42-1 44-7	100 31-9 49-8	161 44-1 19-1	308 13-1 03-6	Peacock	54 10-4	S 56 50-1					
03		0 27-8	265 41-4 44-8	115 33-4 49-9	176 46-2 19-2	323 15-5 03-6	Pollux	244 08-4	N 28 06-2					
04		15 30-3	280 40-8 44-8	130 34-9 50-1	191 48-3 19-4	338 17-9 03-6	Procyon	245 34-6	N 5 18-4					
FRIDAY	05	30 32-7	295 40-2 44-8	145 36-4 50-2	206 50-4 19-6	353 20-3 03-6								
	06	45 35-2	310 39-6 N 21 44-8	160 38-0 S 24 50-3	221 52-4 S 0 19-8	8 22-7 N 12 03-6	Rasalhague	96 36-9	N 12 34-8					
	07	60 37-7	325 39-0 44-9	175 39-5 50-5	236 54-5 19-9	23 25-1 03-6	Regulus	208 18-9	N 12 07-2					
	08	75 40-1	340 38-4 44-9	190 41-0 50-6	251 56-6 20-1	38 27-5 03-6	Rigel	281 44-0	S 8 13-9					
	09	90 42-6	355 37-8 45-0	205 42-5 50-7	266 58-6 20-3	53 29-9 03-6	Rigel Kent.	140 37-2	S 60 42-9					
SATURDAY	10	105 45-0	10 37-1 45-0	220 44-0 50-8	282 00-7 20-5	68 32-3 03-6	Sabik	102 50-3	S 15 41-4					
	11	120 47-5	25 36-5 45-0	235 45-5 51-0	297 02-8 20-7	83 34-7 03-6								
	12	135 50-0	40 35-9 N 21 45-1	250 47-0 S 24 51-1	312 04-8 S 0 20-8	98 37-1 N 12 03-6	Schedar	350 18-3	N 56 22-1					
	13	150 52-4	55 35-3 45-1	265 48-5 51-2	327 06-9 21-0	113 39-5 03-7	Shaula	97 06-6	S 37 05-2					
	14	165 54-9	70 34-7 45-1	280 50-0 51-4	342 09-0 21-2	128 41-9 03-7	Sirius	259 03-2	S 16 40-1					
SUNDAY	15	180 57-4	85 34-1 45-1	295 51-5 51-5	357 11-0 21-4	143 44-3 03-7	Spica	159 06-3	S 11 00-2					
	16	195 59-8	100 33-5 45-2	310 53-0 51-6	12 13-1 21-5	158 46-7 03-7	Suhail	223 17-4	S 43 18-4					
	17	211 02-3	115 32-8 45-2	325 54-5 51-8	27 15-2 21-7	173 49-1 03-7								
	18	226 04-8	130 32-2 N 21 45-2	340 56-0 S 24 51-9	42 17-2 S 0 21-9	188 51-5 N 12 03-7	Vega	81 01-0	N 38 45-3					
	19	241 07-2	145 31-6 45-3	355 57-5 52-0	57 19-3 22-1	203 53-9 03-7	Zuben'ubi	137 42-1	S 15 55-1					
MONDAY	20	256 09-7	160 31-0 45-3	10 59-0 52-2	72 21-4 22-3	218 56-3 03-7								
	21	271 12-2	175 30-4 45-3	26 00-5 52-3	87 23-4 22-4	233 58-7 03-7								
	22	286 14-6	190 29-8 45-3	41 02-0 52-4	102 25-5 22-6	249 01-1 03-7	Venus	266 36-6	h 9 17					
	23	301 17-1	205 29-1 45-4	56 03-5 52-5	117 27-6 22-8	264 03-5 03-7	Mars	115 30-9	19 19					
							Jupiter	176 29-0	15 15					
						Saturn	322 49-4	5 30						
Mer. Pass.		3 02-1	v -0-6 d 0-1	v 1-5 d 0-1	v 2-1 d 0-2	v 2-4 d 0-0								

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise							
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	5	6	7	8			
d	h	°	'	°	'	°	'	°	<i>h</i>	<i>m</i>	°	<i>h</i>	<i>m</i>	°	<i>h</i>	<i>m</i>	°	<i>h</i>	<i>m</i>
TUESDAY	5 00	178 30.5	N 17 05.3	275 29.3	12.7	N 19 04.6	11.5	55.8	N 72	///	///	00 53	□	□	□	□			
	01	193 30.6	04.6	290 01.0	12.7	19 16.1	11.5	55.8	N 70	///	///	02 02	□	□	□	□			
	02	208 30.7	03.9	304 32.7	12.6	19 27.6	11.3	55.7	68	///	///	02 38	□	□	□	□			
	03	223 30.7	03.3	319 04.3	12.5	19 38.9	11.2	55.7	66	///	01 21	03 03	19 43	□	□	□			
	04	238 30.8	02.6	333 35.8	12.5	19 50.1	11.1	55.7	64	///	02 05	03 23	20 24	19 41	□	□			
	05	253 30.8	01.9	348 07.3	12.5	20 01.2	11.0	55.6	62	///	02 33	03 39	20 52	20 44	20 25	□			
	06	268 30.9	N 17 01.2	2 38.8	12.5	N 20 12.2	11.0	55.6	60	01 13	02 55	03 52	21 13	21 18	21 31	22 07			
	07	283 31.0	17 00.6	17 10.3	12.4	20 23.2	10.8	55.6	N 58	01 53	03 12	04 03	21 31	21 43	22 06	22 47			
	08	298 31.0	16 59.9	31 41.7	12.3	20 34.0	10.7	55.6	56	02 19	03 26	04 13	21 46	22 03	22 31	23 15			
	09	313 31.1	59.2	46 13.0	12.4	20 44.7	10.6	55.5	54	02 39	03 38	04 21	21 59	22 20	22 51	23 37			
	10	328 31.1	58.5	60 44.4	12.2	20 55.3	10.5	55.5	52	02 55	03 49	04 29	22 10	22 35	23 08	23 55			
	11	343 31.2	57.9	75 15.6	12.3	21 05.8	10.4	55.5	50	03 09	03 58	04 36	22 20	22 47	23 23	24 10			
	12	358 31.3	N 16 57.2	89 46.9	12.2	N 21 16.2	10.3	55.4	45	03 36	04 17	04 51	22 42	23 13	23 53	24 41			
	13	13 31.3	56.4	104 18.1	12.1	21 26.5	10.2	55.4	N 40	03 56	04 33	05 03	22 59	23 34	24 16	00 16			
	14	28 31.4	55.8	118 49.2	12.1	21 36.7	10.0	55.4	35	04 12	04 45	05 13	23 14	23 51	24 35	00 35			
	15	43 31.5	55.1	133 20.3	12.1	21 46.7	10.0	55.4	30	04 25	04 56	05 22	23 26	24 06	00 06	00 51			
	16	58 31.5	54.5	147 51.4	12.0	21 56.7	9.9	55.3	20	04 46	05 14	05 37	23 48	24 32	00 32	01 19			
	17	73 31.6	53.8	162 22.4	12.0	22 06.6	9.7	55.3	N 10	05 02	05 28	05 50	24 07	00 07	00 54	01 43			
	18	88 31.7	N 16 53.1	176 53.4	11.9	N 22 16.3	9.6	55.3	0	05 16	05 41	06 02	24 25	00 25	01 15	02 06			
	19	103 31.7	52.4	191 24.3	11.9	22 25.9	9.6	55.3	S 10	05 27	05 53	06 14	24 43	00 43	01 36	02 28			
	20	118 31.8	51.7	205 55.2	11.8	22 35.5	9.4	55.2	20	05 38	06 04	06 27	00 08	01 03	01 58	02 52			
	21	133 31.8	51.1	220 26.0	11.8	22 44.9	9.3	55.2	30	05 48	06 17	06 42	00 26	01 25	02 24	03 21			
	22	148 31.9	50.4	234 56.8	11.8	22 54.2	9.2	55.2	35	05 53	06 24	06 50	00 36	01 39	02 40	03 37			
	23	163 32.0	49.7	249 27.6	11.7	23 03.4	9.1	55.1	40	05 59	06 31	07 00	00 48	01 54	02 58	03 57			
WEDNESDAY	6 00	178 32.0	N 16 49.0	263 58.3	11.6	N 23 12.5	8.9	55.1	45	06 04	06 39	07 11	01 03	02 12	03 19	04 21			
	01	193 32.1	48.3	278 28.9	11.7	23 21.4	8.9	55.1	S 50	06 11	06 49	07 24	01 20	02 35	03 47	04 51			
	02	208 32.2	47.6	292 59.6	11.5	23 30.3	8.7	55.1	52	06 13	06 54	07 30	01 29	02 47	04 01	05 07			
	03	223 32.2	47.0	307 30.1	11.6	23 39.0	8.6	55.1	54	06 16	06 59	07 37	01 38	02 59	04 16	05 24			
	04	238 32.3	46.3	322 00.7	11.5	23 47.6	8.5	55.0	56	06 19	07 04	07 45	01 48	03 14	04 35	05 46			
	05	253 32.4	45.6	336 31.2	11.4	23 56.1	8.4	55.0	58	06 22	07 10	07 53	02 01	03 31	04 58	06 14			
	06	268 32.4	N 16 44.9	351 01.6	11.4	N 24 04.5	8.3	55.0	S 60	06 26	07 16	08 03	02 15	03 52	05 28	06 54			
	07	283 32.5	44.2	5 32.0	11.3	24 12.8	8.1	55.0											
	08	298 32.6	43.5	20 02.3	11.4	24 20.9	8.0	54.9											
	09	313 32.6	42.8	34 32.7	11.2	24 28.9	8.0	54.9											
	10	328 32.7	42.2	49 02.9	11.2	24 36.9	7.7	54.9											
	11	343 32.8	41.5	63 33.1	11.2	24 44.6	7.7	54.9	N 72	23 05	///	///	□	□	□	□			
	12	358 32.9	N 16 40.8	78 03.3	11.2	N 24 52.3	7.6	54.9	N 70	22 04	///	///	□	□	□	□			
	13	13 32.9	40.1	92 33.5	11.1	24 59.9	7.4	54.8	68	21 30	///	///	□	□	□	□			
	14	28 33.0	39.4	107 03.6	11.0	25 07.3	7.3	54.8	66	21 05	22 43	///	16 28	□	□	□			
	15	43 33.1	38.7	121 33.6	11.0	25 14.6	7.2	54.8	64	20 47	22 03	///	15 49	18 13	□	□			
	16	58 33.1	38.0	136 03.6	11.0	25 21.8	7.0	54.8	62	20 31	21 35	///	15 22	17 11	19 15	□			
	17	73 33.2	37.3	150 33.6	10.9	25 28.8	6.9	54.8	60	20 18	21 15	22 52	15 01	16 37	18 09	19 21			
	18	88 33.3	N 16 36.6	165 03.5	10.9	N 25 35.7	6.8	54.7	N 58	20 07	20 58	22 15	14 44	16 13	17 35	18 41			
	19	103 33.3	35.9	179 33.4	10.9	25 42.5	6.7	54.7	56	19 58	20 44	21 50	14 29	15 53	17 10	18 13			
	20	118 33.4	35.3	194 03.3	10.8	25 49.2	6.6	54.7	54	19 49	20 32	21 30	14 17	15 36	16 50	17 51			
	21	133 33.5	34.6	208 33.1	10.7	25 55.8	6.4	54.7	52	19 42	20 22	21 15	14 06	15 22	16 33	17 33			
	22	148 33.6	33.9	223 02.8	10.8	26 02.2	6.3	54.7	50	19 35	20 12	21 01	13 56	15 10	16 19	17 18			
	23	163 33.6	33.2	237 32.6	10.6	26 08.5	6.2	54.6	45	19 20	19 53	20 35	13 36	14 45	15 49	16 47			
THURSDAY	7 00	178 33.7	N 16 32.5	252 02.2	10.7	N 26 14.7	6.0	54.6	N 40	19 09	19 38	20 15	13 20	14 25	15 27	16 23			
	01	193 33.8	31.8	266 31.9	10.6	26 20.7	6.0	54.6	35	18 58	19 26	19 59	13 06	14 08	15 08	16 03			
	02	208 33.8	31.1	281 01.5	10.6	26 26.7	5.7	54.6	30	18 50	19 15	19 46	12 54	13 54	14 52	15 46			
	03	223 33.9	30.4	295 31.1	10.5	26 32.4	5.7	54.6	20	18 35	18 58	19 25	12 34	13 29	14 24	15 18			
	04	238 34.0	29.7	310 00.6	10.5	26 38.1	5.5	54.5	N 10	18 21	18 43	19 09	12 17	13 08	14 01	14 54			
	05	253 34.1	29.0	324 30.1	10.5	26 43.6	5.4	54.5	0	18 09	18 31	18 56	12 00	12 49	13 39	14 31			
	06	268 34.1	N 16 28.3	338 59.6	10.4	N 26 49.0	5.3	54.5	S 10	17 57	18 19	18 44	11 44	12 30	13 18	14 08			
	07	283 34.2	27.6	353 29.0	10.4	26 54.3	5.1	54.5	20	17 45	18 08	18 34	11 27	12 09	12 54	13 43			
	08	298 34.3	26.9	7 58.4	10.4	26 59.4	5.0	54.5	30	17 30	17 55	18 24	11 07	11 45	12 27	13 15			
	09	313 34.4	26.2	22 27.8	10.3	27 04.4	4.9	54.5	35	17 22	17 48	18 19	10 56	11 31	12 11	12 58			
	10	328 34.4	25.5	36 57.1	10.3	27 09.3	4.8	54.5	40	17 13	17 41	18 13	10 42	11 15	11 53	12 38			
	11	343 34.5	24.8	51 26.4	10.3	27 14.1	4.6	54.4	45	17 02	17 33	18 08	10 27	10 55	11 30	12 14			
	12	358 34.6	N 16 24.1	65 55.7	10.3	N 27 18.7	4.5	54.4	S 50	16 48	17 23	18 02	10 08	10 31	11 02	11 43			
	13	13 34.7	23.4	80 25.0	10.2	27 23.2	4.3	54.4	52	16 42	17 19	17 59	09 59	10 20	10 48	11 28			
	14	28 34.7	22.7	94 54.2	10.2	27 27.5	4.2	54.4	54	16 35	17 14	17 56	09 49	10 07	10 32	11 10			
	15	43 34.8	22.0	109 23.4	10.1	27 31.7	4.1	54.4	56	16 28	17 08	17 53	09 38	09 52	10 13	10 48			
	16	58 34.9	21.3	123 52.5	10.2	27 35.8	3.9	54.4	58	16 19	17 03	17 50	09 25	09 34	09 50	10 21			
	17	73 35.0	20.6	138 21.7	10.1	27 39.7	3.8	54.4	S 60	16 09	16 56	17 47	09 10	09 12	09 19	09 40			
	18	88 35.0	N 16 19.9	152 50.8	10.0	N 27 43.5	3.7	54.3											
	19	103 35.1	19.2	167 19.8	10.1	27 47.2	3.5	54.3											
	20	118 35.2	18.5	181 48.9	10.0	27 50.7	3.4	54.3											
	21	133 35.3	17.8	196 17.9	10.1	27 54.1	3.3	54.3											
	22	148 35.3	17.1	210 47.0	10.0	27 57.4	3.1	54.3											
	23	163 35.4	16.4	225 16.0	9.9	28													

G.M.T.	ARIES			VENUS -3.5			MARS -0.8			JUPITER -1.3			SATURN +0.5			STARS		
	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
8 00	316 19.5	220 28.5	N 21 45.4	71 05.0	S 24 52.7	132 29.6	S 0 23.0	279 05.9	N 12 03.7	Acamar	315 43.3	S 40 25.1						
01	331 22.0	235 27.9	45.4	86 06.5	52.8	147 31.7	23.2	294 08.3	03.8	Achernar	335 50.8	S 57 23.0						
02	346 24.5	250 27.3	45.4	101 08.0	52.9	162 33.8	23.3	309 10.7	03.8	Acrux	173 47.2	S 62 56.1						
03	1 26.9	265 26.7	45.4	116 09.5	53.1	177 35.8	23.5	324 13.1	03.8	Adhara	255 38.8	S 28 55.5						
04	16 29.4	280 26.1	45.4	131 10.9	53.2	192 37.9	23.7	339 15.5	03.8	Aldebaran	291 27.5	N 16 27.1						
05	31 31.9	295 25.4	45.5	146 12.4	53.3	207 40.0	23.9	354 17.9	03.8									
06	46 34.3	310 24.8	N 21 45.5	161 13.9	S 24 53.5	222 42.0	S 0 24.0	9 20.3	N 12 03.8	Alioth	166 49.6	N 56 07.7						
07	61 36.8	325 24.2	45.5	176 15.4	53.6	237 44.1	24.2	24 22.7	03.8	Alkaid	153 24.8	N 49 28.1						
08	76 39.3	340 23.6	45.5	191 16.9	53.7	252 46.2	24.4	39 25.1	03.8	Al Na'ir	28 24.5	S 47 06.4						
F 09	91 41.7	355 23.0	45.5	206 18.4	53.9	267 48.2	24.6	54 27.6	03.8	Alnilam	276 20.1	S 1 12.9						
R 10	106 44.2	10 22.3	45.5	221 19.9	54.0	282 50.3	24.8	69 30.0	03.8	Alphard	218 28.9	S 8 31.4						
I 11	121 46.7	25 21.7	45.5	236 21.3	54.1	297 52.4	24.9	84 32.4	03.8									
D 12	136 49.1	40 21.1	N 21 45.5	251 22.8	S 24 54.2	312 54.4	S 0 25.1	99 34.8	N 12 03.8	Alphecca	126 38.9	N 26 49.1						
A 13	151 51.6	55 20.5	45.6	266 24.3	54.4	327 56.5	25.3	114 37.2	03.8	Alpheratz	358 17.6	N 28 55.3						
Y 14	166 54.0	70 19.9	45.6	281 25.8	54.5	342 58.5	25.5	129 39.6	03.9	Altair	62 40.2	N 8 47.2						
15	181 56.5	85 19.2	45.6	296 27.3	54.6	358 00.6	25.7	144 42.0	03.9	Ankaa	353 47.8	S 42 28.0						
16	196 59.0	100 18.6	45.6	311 28.7	54.8	13 02.7	25.8	159 44.4	03.9	Antares	113 06.7	S 26 22.1						
17	212 01.4	115 18.0	45.6	326 30.2	54.9	28 04.7	26.0	174 46.8	03.9									
18	227 03.9	130 17.4	N 21 45.6	341 31.7	S 24 55.0	43 06.8	S 0 26.2	189 49.2	N 12 03.9	Arcturus	146 25.9	N 19 20.5						
19	242 06.4	145 16.7	45.6	356 33.2	55.2	58 08.9	26.4	204 51.6	03.9	Atria	108 38.2	S 68 58.8						
20	257 08.8	160 16.1	45.6	11 34.6	55.3	73 10.9	26.6	219 54.0	03.9	Avior	234 32.4	S 59 24.5						
21	272 11.3	175 15.5	45.6	26 36.1	55.4	88 13.0	26.7	234 56.4	03.9	Bellatrix	279 07.7	N 6 19.6						
22	287 13.8	190 14.9	45.6	41 37.6	55.6	103 15.1	26.9	249 58.8	03.9	Betelgeuse	271 37.3	N 7 24.4						
23	302 16.2	205 14.2	45.6	56 39.0	55.7	118 17.1	27.1	265 01.3	03.9									
9 00	317 18.7	220 13.6	N 21 45.6	71 40.5	S 24 55.8	133 19.2	S 0 27.3	280 03.7	N 12 03.9	Canopus	264 11.3	S 52 40.3						
01	332 21.1	235 13.0	45.6	86 42.0	56.0	148 21.2	27.4	295 06.1	03.9	Capella	281 23.6	N 45 58.1						
02	347 23.6	250 12.4	45.6	101 43.4	56.1	163 23.3	27.6	310 08.5	03.9	Deneb	49 53.7	N 45 10.2						
03	2 26.1	265 11.7	45.6	116 44.9	56.2	178 25.4	27.8	325 10.9	03.9	Denebola	183 07.5	N 14 44.6						
04	17 28.5	280 11.1	45.6	131 46.4	56.3	193 27.4	28.0	340 13.3	04.0	Diphda	349 28.7	S 18 08.9						
05	32 31.0	295 10.5	45.6	146 47.8	56.5	208 29.5	28.2	355 15.7	04.0									
06	47 33.5	310 09.9	N 21 45.5	161 49.3	S 24 56.6	223 31.6	S 0 28.3	10 18.1	N 12 04.0	Dubhe	194 32.3	N 61 55.1						
07	62 35.9	325 09.2	45.5	176 50.8	56.7	238 33.6	28.5	25 20.5	04.0	El Nath	278 54.6	N 28 35.1						
08	77 38.4	340 08.6	45.5	191 52.2	56.9	253 35.7	28.7	40 22.9	04.0	Eltanin	91 01.1	N 51 29.6						
S 09	92 40.9	355 08.0	45.5	206 53.7	57.0	268 37.7	28.9	55 25.3	04.0	Enif	34 19.3	N 9 44.1						
A 10	107 43.3	10 07.4	45.5	221 55.1	57.1	283 39.8	29.1	70 27.8	04.0	Fomalhaut	15 59.9	S 29 46.9						
T 11	122 45.8	25 06.7	45.5	236 56.6	57.3	298 41.9	29.2	85 30.2	04.0									
R 12	137 48.2	40 06.1	N 21 45.5	251 58.0	S 24 57.4	313 43.9	S 0 29.4	100 32.6	N 12 04.0	Gacrux	172 38.5	S 56 56.8						
D 13	152 50.7	55 05.5	45.5	266 59.5	57.5	328 46.0	29.6	115 35.0	04.0	Gienah	176 26.6	S 17 22.4						
A 14	167 53.2	70 04.9	45.4	282 00.9	57.7	343 48.0	29.8	130 37.4	04.0	Hadar	149 35.4	S 60 13.9						
Y 15	182 55.6	85 04.2	45.4	297 02.4	57.8	358 50.1	30.0	145 39.8	04.0	Hamal	328 38.1	N 23 19.2						
16	197 58.1	100 03.6	45.4	312 03.9	57.9	13 52.2	30.1	160 42.2	04.0	Kaus Aust.	84 27.3	S 34 24.2						
17	213 00.6	115 03.0	45.4	327 05.3	58.1	28 54.2	30.3	175 44.6	04.0									
18	228 03.0	130 02.4	N 21 45.4	342 06.7	S 24 58.2	43 56.3	S 0 30.5	190 47.0	N 12 04.0	Kochab	137 18.0	N 74 17.0						
19	243 05.5	145 01.7	45.3	357 08.2	58.3	58 58.4	30.7	205 49.5	04.1	Markab	14 11.0	N 15 02.5						
20	258 08.0	160 01.1	45.3	12 09.6	58.5	74 00.4	30.9	220 51.9	04.1	Menkar	314 49.7	N 3 58.5						
21	273 10.4	175 00.5	45.3	27 11.1	58.6	89 02.5	31.0	235 54.3	04.1	Menkent	148 46.8	S 36 13.5						
22	288 12.9	189 59.8	45.3	42 12.5	58.7	104 04.5	31.2	250 56.7	04.1	Miaplacidus	221 48.1	S 69 35.4						
23	303 15.4	204 59.2	45.3	57 14.0	58.9	119 06.6	31.4	265 59.1	04.1									
10 00	318 17.8	219 58.6	N 21 45.2	72 15.4	S 24 59.0	134 08.7	S 0 31.6	281 01.5	N 12 04.1	Mirfak	309 28.0	N 49 45.2						
01	333 20.3	234 57.9	45.2	87 16.9	59.1	149 10.7	31.8	296 03.9	04.1	Nunki	76 38.9	S 26 20.3						
02	348 22.7	249 57.3	45.2	102 18.3	59.2	164 12.8	32.0	311 06.3	04.1	Peacock	54 10.4	S 56 50.1						
03	3 25.2	264 56.7	45.1	117 19.7	59.4	179 14.8	32.1	326 08.8	04.1	Pollux	244 08.4	N 28 06.2						
04	18 27.7	279 56.1	45.1	132 21.2	59.5	194 16.9	32.3	341 11.2	04.1	Procyon	245 34.6	N 5 18.4						
05	33 30.1	294 55.4	45.1	147 22.6	59.6	209 19.0	32.5	356 13.6	04.1									
06	48 32.6	309 54.8	N 21 45.0	162 24.1	S 24 59.8	224 21.0	S 0 32.7	11 16.0	N 12 04.1	Rasalhague	96 36.9	N 12 34.8						
07	63 35.1	324 54.2	45.0	177 25.5	24 59.9	239 23.1	32.9	26 18.4	04.1	Regulus	208 18.9	N 12 07.2						
08	78 37.5	339 53.5	45.0	192 26.9	25 00.0	254 25.1	33.0	41 20.8	04.1	Rigel	281 44.0	S 8 13.8						
S 09	93 40.0	354 52.9	44.9	207 28.4	00.2	269 27.2	33.2	56 23.2	04.1	Rigel Kent.	140 37.2	S 60 42.9						
U 10	108 42.5	9 52.3	44.9	222 29.8	00.3	284 29.2	33.4	71 25.7	04.1	Sabik	102 50.3	S 15 41.4						
N 11	123 44.9	24 51.7	44.9	237 31.2	00.4	299 31.3	33.6	86 28.1	04.1									
D 12	138 47.4	39 51.0	N 21 44.8	252 32.7	S 25 00.6	314 33.4	S 0 33.8	101 30.5	N 12 04.1	Schedar	350 18.3	N 56 22.1						
A 13	153 49.9	54 50.4	44.8	267 34.1	00.7	329 35.4	33.9	116 32.9	04.2	Shaula	97 06.6	S 37 05.2						
Y 14	168 52.3	69 49.8	44.8	282 35.5	00.8	344 37.5	34.1	131 35.3	04.2	Sirius	259 03.2	S 16 40.1						
15	183 54.8	84 49.1	44.7	297 37.0	01.0	359 39.5	34.3	146 37.7	04.2	Spica	159 06.3	S 11 00.2						
16	198 57.2	99 48.5	44.7	312 38.4	01.1	14 41.6	34.5	161 40.1	04.2	Suhail	223 17.4	S 43 18.4						
17	213 59.7	114 47.9	44.6	327 39.8	01.2	29 43.7	34.7	176 42.6	04.2									
18	229 02.2	129 47.2	N 21 44.6	342 41.2	S 25 01.4	44 45.7	S 0 34.9	191 45.0	N 12 04.2	Vega	81 01.0	N 38 45.3						
19	244 04.6	144 46.6	44.5	357 42.7	01.5	59 47.8	35.0	206 47.4	04.2	Zuben'ubi	137 42.1	S 15 55.1						
20	259 07.1	159 46.0	44.5	12 44.1	01.6	74 49.8	35.2	221 49.8	04.2									
21	274 09.6	174 45.3	44.4	27 45.5	01.7	89 51.9	35.4	236 52.2	04.2									

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise							
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.		Naut.	Civil		8	9	10	11				
d	h	°	'	°	'	°	'	°	'	°	'	h	m	h	m	h	m	h	m	
8 00	01	178	35.5	N 16	15.7	239	44.9	10.0	N 28	03.5	2.9	54.3	01 32							
	02	193	35.6		15.0	254	13.9	9.9	N 28	06.4	2.7	54.3	02 21							
	03	208	35.7		14.3	268	42.8	9.9	N 28	09.1	2.6	54.2	03 15							
	04	223	35.7		13.5	283	11.7	9.9	N 28	11.7	2.4	54.2	04 19							
	05	238	35.8		12.8	297	40.6	9.9	N 28	14.1	2.3	54.2	05 17							
F 09	06	253	35.9		12.1	312	09.5	9.9	N 28	16.4	2.2	54.2	06 33							
	07	268	36.0	N 16	11.4	326	38.4	9.9	N 28	18.6	2.0	54.2	07 09							
	08	283	36.1		10.7	341	07.3	9.8	N 28	20.6	1.9	54.2	08 29							
	09	298	36.1		10.0	355	36.1	9.9	N 28	22.5	1.8	54.2	09 47							
	10	313	36.2		09.3	10	05.0	9.8	N 28	24.3	1.6	54.2	10 51							
R 10	11	328	36.3		08.6	24	33.8	9.8	N 28	25.9	1.5	54.2	11 51							
	12	343	36.4		07.9	39	02.6	9.8	N 28	27.4	1.3	54.2	12 51							
	13	358	36.5	N 16	07.2	53	31.4	9.8	N 28	28.7	1.2	54.2	01 00							
	14	13	36.5		06.5	68	00.2	9.9	N 28	29.9	1.1	54.1	02 01							
	15	28	36.6		05.7	82	29.1	9.8	N 28	31.0	0.9	54.1	03 01							
D 12	16	43	36.7		05.0	96	57.9	9.8	N 28	31.9	0.8	54.1	04 01							
	17	58	36.8		04.3	111	26.7	9.8	N 28	32.7	0.7	54.1	05 01							
	18	73	36.9		03.6	125	55.5	9.8	N 28	33.4	0.5	54.1	06 01							
	19	88	37.0	N 16	02.9	140	24.3	9.8	N 28	33.9	0.3	54.1	07 01							
	20	103	37.0		02.2	154	53.1	9.8	N 28	34.2	0.3	54.1	08 01							
A 13	21	118	37.1		01.5	169	21.9	9.8	N 28	34.5	0.1	54.1	09 01							
	22	133	37.2		00.7	183	50.7	9.8	N 28	34.6	0.1	54.1	10 01							
	23	148	37.3		16 00.0	198	19.5	9.8	N 28	34.5	0.2	54.1	11 01							
	24	163	37.4		15 59.3	212	48.3	9.8	N 28	34.3	0.3	54.1	12 01							
	25	178	37.5	N 15	58.6	227	17.1	9.8	N 28	34.0	0.5	54.1	01 01							
9 00	01	193	37.5		57.9	241	45.9	9.9	N 28	33.5	0.6	54.1	02 01							
	02	208	37.6		57.2	256	14.8	9.8	N 28	32.9	0.7	54.1	03 01							
	03	223	37.7		56.4	270	43.6	9.9	N 28	32.2	0.9	54.1	04 01							
	04	238	37.8		55.7	285	12.5	9.9	N 28	31.3	1.0	54.0	05 01							
	05	253	37.9		55.0	299	41.4	9.9	N 28	30.3	1.1	54.0	06 01							
S 08	06	268	38.0	N 15	54.3	314	10.3	9.9	N 28	29.2	1.3	54.0	07 01							
	07	283	38.0		53.6	328	39.2	9.9	N 28	27.9	1.4	54.0	08 01							
	08	298	38.1		52.9	343	08.1	9.9	N 28	26.5	1.6	54.0	09 01							
	09	313	38.2		52.1	357	37.0	10.0	N 28	24.9	1.7	54.0	10 01							
	10	328	38.3		51.4	12	06.0	10.0	N 28	23.2	1.8	54.0	11 01							
T 10	11	343	38.4		50.7	26	35.0	9.9	N 28	21.4	2.0	54.0	12 01							
	12	358	38.5	N 15	50.0	41	03.9	10.1	N 28	19.4	2.1	54.0	01 01							
	13	13	38.6		49.2	55	33.0	10.0	N 28	17.3	2.3	54.0	02 01							
	14	28	38.6		48.5	70	02.0	10.1	N 28	15.0	2.4	54.0	03 01							
	15	43	38.7		47.8	84	31.1	10.1	N 28	12.6	2.5	54.0	04 01							
R 12	16	58	38.8		47.1	99	00.2	10.1	N 28	10.1	2.6	54.0	05 01							
	17	73	38.9		46.4	113	29.3	10.1	N 28	07.5	2.8	54.0	06 01							
	18	88	39.0	N 15	45.6	127	58.4	10.2	N 28	04.7	2.9	54.0	07 01							
	19	103	39.1		44.9	142	27.6	10.2	N 28	01.8	3.1	54.0	08 01							
	20	118	39.2		44.2	156	56.8	10.2	N 27	58.7	3.2	54.0	09 01							
D 13	21	133	39.3		43.5	171	26.0	10.3	N 27	55.5	3.3	54.0	10 01							
	22	148	39.4		42.7	185	55.3	10.3	N 27	52.2	3.4	54.0	11 01							
	23	163	39.4		42.0	200	24.6	10.3	N 27	48.8	3.6	54.0	12 01							
	24	178	39.5	N 15	41.3	214	53.9	10.4	N 27	45.2	3.7	54.0	01 01							
	25	193	39.6		40.5	229	23.3	10.4	N 27	41.5	3.9	54.0	02 01							
A 13	01	208	39.7		39.8	243	52.7	10.4	N 27	37.6	4.0	54.0	03 01							
	02	223	39.8		39.1	258	22.1	10.5	N 27	33.6	4.1	54.0	04 01							
	03	238	39.9		38.4	272	51.6	10.5	N 27	29.5	4.2	54.0	05 01							
	04	253	40.0		37.6	287	21.1	10.6	N 27	25.3	4.4	54.0	06 01							
	05	268	40.1	N 15	36.9	301	50.7	10.6	N 27	20.9	4.5	54.0	07 01							
S 09	06	283	40.2		36.2	316	20.3	10.6	N 27	16.4	4.6	54.0	08 01							
	07	298	40.3		35.4	330	49.9	10.7	N 27	11.8	4.8	54.0	09 01							
	08	313	40.4		34.7	345	19.6	10.7	N 27	07.0	4.9	54.0	10 01							
	09	328	40.4		34.0	359	49.3	10.8	N 27	02.1	5.0	54.0	11 01							
	10	343	40.5		33.2	14	19.1	10.8	N 26	57.1	5.1	54.0	12 01							
U 10	11	358	40.6	N 15	32.5	28	48.9	10.8	N 26	52.0	5.3	54.0	01 01							
	12	13	40.7		31.8	43	18.7	10.9	N 26	46.7	5.4	54.0	02 01							
	13	28	40.8		31.1	57	48.6	10.9	N 26	41.3	5.5	54.0	03 01							
	14	43	40.9		30.3	72	18.5	11.0	N 26	35.8	5.6	54.0	04 01							
	15	58	41.0		29.6	86	48.5	11.1	N 26	30.2	5.8	54.0	05 01							
D 12	16	73	41.1		28.8	101	18.6	11.1	N 26	24.4	5.9	54.0	06 01							
	17	88	41.2	N 15	28.1	115	48.7	11.1	N 26	18.5	6.0	54.0	07 01							
	18	103	41.3		27.4	130	18.8	11.2	N 26	12.5	6.1	54.0	08 01							
	19	118	41.4		26.6	144	49.0	11.2	N 26	06.4	6.2	54.0	09 01							
	20	133	41.5		25.9	159	19.2	11.3	N 26	00.2	6.4	54.0	10 01							
A 13	21	148	41.6		25.2	173	49.5	11.3	N 25	53.8	6.5	54.0	11 01							
	22	163	41.7		24.4	188	19.8	11.4	N 25	47.3	6.6	54.1	12 01							
	23	S.D. 15.8	<i>d</i>	0.7		S.D. 14.8		14.7		14.7										
	24																			
	25																			
Day	SUN		MOON				Mer. Pass.		Mer. Pass.		Mer. Pass.		Mer. Pass.		Mer. Pass.		Mer. Pass.		Mer. Pass.	
	Eqn. of Time		Mer. Pass.		Mer. Pass.		Mer. Pass.		Mer. Pass.		Mer. Pass.		Mer. Pass.		Mer. Pass.		Mer. Pass.		Mer. Pass.	
	00h		12h		h m		h m		h m		h m		h m		h m		h m		h m	
8	05 38	05 34	12 06	08 18	20 44	25														
9	05 30	05 26	12 05	09 10	21 35	26														
10	05 22	05 18	12 05	10 01	22 26	27														

G.M.T.		ARIES		VENUS -3.5		MARS -0.7		JUPITER -1.3		SATURN +0.5		STARS												
		G.H.A.		G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.										
d	h	°	'	°	'	°	'	°	'	°	'		°	'										
MONDAY	00	319	17-0	219	43-4	N 21	44-3	72	49-8	S 25	02-1	134	58-1	S 0	36-0	281	59-5	N 12	04-2	Acamar	315	43-2	S 40	25-1
	01	334	19-4	234	42-8		44-3	87	51-2		02-3	150	00-1		36-1	297	01-9		04-2	Achernar	335	50-8	S 57	23-0
	02	349	21-9	249	42-2		44-2	102	52-6		02-4	165	02-2		36-3	312	04-3		04-2	Acrux	173	47-2	S 62	56-1
	03	4	24-4	264	41-5		44-1	117	54-0		02-5	180	04-2		36-5	327	06-7		04-2	Adhara	255	38-8	S 28	55-5
	04	19	26-8	279	40-9		44-1	132	55-4		02-7	195	06-3		36-7	342	09-1		04-2	Aldebaran	291	27-5	N 16	27-1
	05	34	29-3	294	40-3		44-0	147	56-9		02-8	210	08-3		36-9	357	11-6		04-2					
	06	49	31-7	309	39-6	N 21	44-0	162	58-3	S 25	02-9	225	10-4	S 0	37-0	12	14-0	N 12	04-2	Alioth	166	49-6	N 56	07-7
	07	64	34-2	324	39-0		43-9	177	59-7		03-1	240	12-4		37-2	27	16-4		04-2	Alkaid	153	24-8	N 49	28-1
	08	79	36-7	339	38-4		43-9	193	01-1		03-2	255	14-5		37-4	42	18-8		04-2	Al Na'ir	28	24-5	S 47	06-4
	09	94	39-1	354	37-7		43-8	208	02-5		03-3	270	16-6		37-6	57	21-2		04-2	Alnilam	276	20-1	S 1	12-9
	10	109	41-6	9	37-1		43-7	223	03-9		03-5	285	18-6		37-8	72	23-6		04-2	Alphard	218	28-9	S 8	31-4
	11	124	44-1	24	36-5		43-7	238	05-3		03-6	300	20-7		38-0	87	26-1		04-2					
	12	139	46-5	39	35-8	N 21	43-6	253	06-7	S 25	03-7	315	22-7	S 0	38-1	102	28-5	N 12	04-3	Alphecca	126	38-9	N 26	49-1
	13	154	49-0	54	35-2		43-6	268	08-1		03-9	330	24-8		38-3	117	30-9		04-3	Alpheratz	358	17-6	N 28	55-4
	14	169	51-5	69	34-5		43-5	283	09-5		04-0	345	26-8		38-5	132	33-3		04-3	Altair	62	40-2	N 8	47-2
	15	184	53-9	84	33-9		43-4	298	10-9		04-1	0	28-9		38-7	147	35-7		04-3	Ankaa	353	47-7	S 42	28-0
	16	199	56-4	99	33-3		43-4	313	12-3		04-3	15	30-9		38-9	162	38-2		04-3	Antares	113	06-8	S 26	22-1
	17	214	58-9	114	32-6		43-3	328	13-8		04-4	30	33-0		39-1	177	40-6		04-3					
	18	230	01-3	129	32-0	N 21	43-2	343	15-2	S 25	04-5	45	35-1	S 0	39-2	192	43-0	N 12	04-3	Arcturus	146	25-9	N 19	20-5
	19	245	03-8	144	31-4		43-2	358	16-6		04-6	60	37-1		39-4	207	45-4		04-3	Atria	108	38-2	S 68	58-8
	20	260	06-2	159	30-7		43-1	13	18-0		04-8	75	39-2		39-6	222	47-8		04-3	Avior	234	32-4	S 59	24-4
	21	275	08-7	174	30-1		43-0	28	19-4		04-9	90	41-2		39-8	237	50-3		04-3	Bellatrix	279	07-6	N 6	19-6
	22	290	11-2	189	29-4		43-0	43	20-8		05-0	105	43-3		40-0	252	52-7		04-3	Betelgeuse	271	37-3	N 7	24-4
	23	305	13-6	204	28-8		42-9	58	22-1		05-2	120	45-3		40-1	267	55-1		04-3					
TUESDAY	00	320	16-1	219	28-2	N 21	42-8	73	23-5	S 25	05-3	135	47-4	S 0	40-3	282	57-5	N 12	04-3	Canopus	264	11-2	S 52	40-3
	01	335	18-6	234	27-5		42-7	88	24-9		05-4	150	49-4		40-5	298	00-0		04-3	Capella	281	23-6	N 45	58-1
	02	350	21-0	249	26-9		42-7	103	26-3		05-6	165	51-5		40-7	313	02-4		04-3	Deneb	49	53-7	N 45	10-3
	03	5	23-5	264	26-3		42-6	118	27-7		05-7	180	53-5		40-9	328	04-8		04-3	Denebola	183	07-5	N 14	44-6
	04	20	26-0	279	25-6		42-5	133	29-1		05-8	195	55-6		41-1	343	07-2		04-3	Diphda	349	28-7	S 18	08-9
	05	35	28-4	294	25-0		42-4	148	30-5		06-0	210	57-6		41-2	358	09-6		04-3					
	06	50	30-9	309	24-3	N 21	42-3	163	31-9	S 25	06-1	225	59-7	S 0	41-4	13	12-1	N 12	04-3	Dubhe	194	32-3	N 61	55-1
	07	65	33-4	324	23-7		42-3	178	33-3		06-2	241	01-7		41-6	28	14-5		04-3	El Nath	278	54-6	N 28	35-1
	08	80	35-8	339	23-1		42-2	193	34-7		06-4	256	03-8		41-8	43	16-9		04-3	Eltanin	91	01-1	N 51	29-6
	09	95	38-3	354	22-4		42-1	208	36-1		06-5	271	05-9		42-0	58	19-3		04-3	Enif	34	19-2	N 9	44-1
	10	110	40-7	9	21-8		42-0	223	37-5		06-6	286	07-9		42-2	73	21-8		04-3	Fomalhaut	15	59-9	S 29	46-9
	11	125	43-2	24	21-1		41-9	238	38-8		06-8	301	10-0		42-3	88	24-2		04-3					
	12	140	45-7	39	20-5	N 21	41-8	253	40-2	S 25	06-9	316	12-0	S 0	42-5	103	26-6	N 12	04-3	Gacrux	172	38-5	S 56	56-8
	13	155	48-1	54	19-9		41-8	268	41-6		07-0	331	14-1		42-7	118	29-0		04-3	Gienah	176	26-6	S 17	22-4
	14	170	50-6	69	19-2		41-7	283	43-0		07-2	346	16-1		42-9	133	31-4		04-3	Hadar	149	35-4	S 60	13-9
	15	185	53-1	84	18-6		41-6	298	44-4		07-3	1	18-2		43-1	148	33-9		04-3	Hamal	328	38-1	N 23	19-2
	16	200	55-5	99	17-9		41-5	313	45-8		07-4	16	20-2		43-3	163	36-3		04-3	Kaus Aust.	84	27-3	S 34	24-2
	17	215	58-0	114	17-3		41-4	328	47-1		07-5	31	22-3		43-5	178	38-7		04-3					
	18	231	00-5	129	16-7	N 21	41-3	343	48-5	S 25	07-7	46	24-3	S 0	43-6	193	41-1	N 12	04-3	Kochab	137	18-1	N 74	17-0
	19	246	02-9	144	16-0		41-2	358	49-9		07-8	61	26-4		43-8	208	43-6		04-3	Markab	14	11-0	N 15	02-5
	20	261	05-4	159	15-4		41-1	13	51-3		07-9	76	28-4		44-0	223	46-0		04-3	Menkar	314	49-6	N 3	58-5
	21	276	07-9	174	14-7		41-0	28	52-6		08-1	91	30-5		44-2	238	48-4		04-3	Menkent	148	46-8	S 36	13-5
	22	291	10-3	189	14-1		40-9	43	54-0		08-2	106	32-5		44-4	253	50-8		04-3	Miaplacidus	221	48-1	S 69	35-4
	23	306	12-8	204	13-5		40-8	58	55-4		08-3	121	34-6		44-6	268	53-3		04-3					
WEDNESDAY	00	321	15-2	219	12-8	N 21	40-7	73	56-8	S 25	08-5	136	36-6	S 0	44-7	283	55-7	N 12	04-3	Mirfak	309	27-9	N 49	45-2
	01	336	17-7	234	12-2		40-6	88	58-1		08-6	151	38-7		44-9	298	58-1		04-3	Nunki	76	38-9	S 26	20-3
	02	351	20-2	249	11-5		40-5	103	59-5		08-7	166	40-7		45-1	314	00-5		04-3	Peacock	54	10-4	S 56	50-1
	03	6	22-6	264	10-9		40-4	119	00-9		08-9	181	42-8		45-3	329	03-0		04-3	Pollux	244	08-4	N 28	06-2
	04	21	25-1	279	10-3		40-3	134	02-2		09-0	196	44-8		45-5	344	05-4		04-3	Procyon	245	34-6	N 5	18-5
	05	36	27-6	294	09-6		40-2	149	03-6		09-1	211	46-9		45-7	359	07-8		04-3					
	06	51	30-0	309	09-0	N 21	40-1	164	05-0	S 25	09-3	226	48-9	S 0	45-8	14	10-3	N 12	04-3	Rasalhague	96	36-9	N 12	34-9
	07	66	32-5	324	08-3		40-0	179	06-3		09-4	241	51-0		46-0	29	12-7		04-4	Regulus	208	18-9	N 12	07-2
	08	81	35-0	339	07-7		39-9	194	07-7		09-5	256	53-0		46-2	44								

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise							
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	11	12	13	14			
d	h	°	'	°	'	°	'	°	'	h	m	h	m	h	m	h	m	h	m
MONDAY	00	178 41.8 N15 23.7	202 50.2 11.5	N 25 40.7	6.7	54.1	N 72	0	02 00	0	03 58	0	01 54	0	04 21				
	01	193 41.9 23.0	217 20.7 11.5	25 34.0	6.9	54.1	N 70	0	02 39	0	04 39	0	02 35	0	04 39				
	02	208 42.0 22.2	231 51.2 11.5	25 27.1	6.9	54.1	66	01 13	03 05	0	04 54	00 49	03 02	0	04 54				
	03	223 42.1 21.5	246 21.7 11.6	25 20.2	7.1	54.1	64	02 03	03 25	25 32	03 02	03 23	05 05						
	04	238 42.2 20.7	260 52.3 11.7	25 13.1	7.2	54.1	62	02 33	03 42	00 13	02 00	03 40	05 15						
	05	253 42.3 20.0	275 23.0 11.7	25 05.9	7.3	54.1	60	02 55	03 55	00 47	02 22	03 54	05 23						
	06	268 42.4 N15 19.3	289 53.7 11.7	N 24 58.6	7.4	54.1	N 58	01 05	02 18	01 13	02 39	04 06	05 31						
	07	283 42.4 18.5	304 24.4 11.9	24 51.2	7.6	54.1	56	02 38	03 27	01 33	02 54	04 16	05 37						
	08	298 42.5 17.8	318 55.3 11.8	24 43.6	7.6	54.1	54	03 09	03 50	01 49	03 07	04 25	05 43						
	09	313 42.6 17.0	333 26.1 12.0	24 36.0	7.8	54.1	52	02 55	03 50	02 03	03 18	04 33	05 48						
	10	328 42.7 16.3	347 57.1 12.0	24 28.2	7.9	54.1	50	03 21	04 08	02 16	03 27	04 40	05 53						
	11	343 42.8 15.6	2 28.1 12.0	24 20.3	8.0	54.1	45	03 45	04 25	02 41	03 48	04 56	06 03						
	12	358 42.9 N15 14.8	16 59.1 12.1	N 24 12.3	8.0	54.1	N 40	04 03	04 39	03 02	04 05	05 08	06 11						
	13	13 43.0 14.1	31 30.2 12.2	24 04.3	8.2	54.1	35	04 18	04 50	03 18	04 18	05 19	06 18						
	14	28 43.1 13.3	46 01.4 12.2	23 56.1	8.4	54.1	30	04 30	05 00	03 33	04 31	05 28	06 25						
	15	43 43.2 12.6	60 32.6 12.2	23 47.7	8.4	54.1	20	04 49	05 16	03 57	04 51	05 44	06 35						
	16	58 43.3 11.8	75 03.8 12.4	23 39.3	8.5	54.2	N 10	05 03	05 29	04 18	05 09	05 58	06 45						
	17	73 43.4 11.1	89 35.2 12.4	23 30.8	8.6	54.2	0	05 15	05 40	04 38	05 25	06 10	06 53						
	18	88 43.5 N15 10.3	104 06.6 12.4	N 23 22.2	8.8	54.2	S 10	05 26	05 51	04 58	05 42	06 23	07 02						
	19	103 43.6 09.6	118 38.0 12.5	23 13.4	8.8	54.2	20	05 35	06 01	05 19	06 00	06 37	07 11						
	20	118 43.7 08.9	133 09.5 12.6	23 04.6	9.0	54.2	30	05 44	06 12	05 43	06 20	06 52	07 22						
	21	133 43.8 08.1	147 41.1 12.6	22 55.6	9.0	54.2	35	05 48	06 18	05 57	06 31	07 01	07 28						
	22	148 43.9 07.4	162 12.7 12.7	22 46.6	9.1	54.2	40	05 52	06 24	06 13	06 45	07 11	07 35						
23	163 44.0 06.6	176 44.4 12.7	22 37.5	9.3	54.2	45	05 57	06 31	06 33	07 01	07 23	07 42							
TUESDAY	00	178 44.1 N15 05.9	191 16.1 12.8	N 22 28.2	9.3	54.2	S 50	06 02	06 40	06 57	07 20	07 38	07 52						
	01	193 44.2 05.1	205 47.9 12.9	22 18.9	9.5	54.2	52	06 04	06 44	07 09	07 29	07 44	07 56						
	02	208 44.3 04.4	220 19.8 12.9	22 09.4	9.5	54.2	54	06 06	06 48	07 25	07 22	07 39	07 52	08 01					
	03	223 44.4 03.6	234 51.7 13.0	21 59.9	9.7	54.2	56	06 08	06 52	07 32	07 37	07 51	08 00	08 06					
	04	238 44.5 02.9	249 23.7 13.0	21 50.2	9.7	54.2	58	06 10	06 57	07 40	07 55	08 04	08 09	08 12					
	05	253 44.6 02.1	263 55.7 13.1	21 40.5	9.9	54.3	S 60	06 13	07 03	07 48	08 17	08 20	08 20	08 19					
	06	268 44.7 N15 01.4	278 27.8 13.1	N 21 30.6	9.9	54.3													
	07	283 44.9 15 00.6	292 59.9 13.2	21 20.7	10.0	54.3	Lat.	Sun-set	Twilight		Moonset								
	08	298 45.0 14 59.9	307 32.1 13.3	21 10.7	10.2	54.3			Civil	Naut.	11	12	13	14					
	09	313 45.1 14 59.1	322 04.4 13.3	21 00.5	10.2	54.3	°	h m	h m	h m	h m	h m	h m	h m	h m				
	10	328 45.2 14 58.4	336 36.7 13.4	20 50.3	10.3	54.3	N 72	22 04	0	0	21 52	21 06							
	11	343 45.3 14 57.6	351 09.1 13.4	20 40.0	10.4	54.3	N 70	21 27	0	0	21 27	20 53							
	12	358 45.4 N14 56.9	5 41.5 13.5	N 20 29.6	10.5	54.3	68	21 01	22 48	0	21 41	21 07	20 43						
	13	13 45.5 56.1	20 14.0 13.5	20 19.1	10.5	54.3	66	20 42	22 03	21 51	21 12	20 51	20 35						
	14	28 45.6 55.4	34 46.5 13.6	20 08.6	10.7	54.3	64	20 26	21 34	21 08	20 50	20 38	20 28						
	15	43 45.7 54.6	49 19.1 13.7	19 57.9	10.8	54.4	62	20 13	21 12	20 39	20 33	20 27	20 22						
	16	58 45.8 53.9	63 51.8 13.7	19 47.1	10.8	54.4	60	20 02	20 55	20 16	20 18	20 18	20 17						
	17	73 45.9 53.1	78 24.5 13.7	19 36.3	10.9	54.4	N 58	19 53	20 41	19 58	20 05	20 09	20 12						
	18	88 46.0 N14 52.3	92 57.2 13.8	N 19 25.4	11.0	54.4	56	19 44	20 29	19 43	19 54	20 02	20 08						
	19	103 46.1 51.6	107 30.0 13.9	19 14.4	11.1	54.4	54	19 37	20 18	19 30	19 44	19 55	20 04						
	20	118 46.2 50.8	122 02.9 13.9	19 03.3	11.2	54.4	52	19 30	20 09	19 18	19 36	19 49	20 00						
	21	133 46.3 50.1	136 35.8 14.0	18 52.1	11.3	54.4	50	19 24	20 01	19 08	19 28	19 44	19 57						
	22	148 46.4 49.3	151 08.8 14.0	18 40.8	11.3	54.4	45	19 12	19 44	18 46	19 11	19 32	19 50						
23	163 46.5 48.6	165 41.8 14.1	18 29.5	11.4	54.4														
WEDNESDAY	00	178 46.6 N14 47.8	180 14.9 14.2	N 18 18.1	11.5	54.5	N 40	19 01	19 30	18 29	18 58	19 22	19 44						
	01	193 46.8 47.0	194 48.1 14.1	18 06.6	11.6	54.5	35	18 52	19 19	19 51	18 14	18 46	19 14	19 39					
	02	208 46.9 46.3	209 21.2 14.3	17 55.0	11.7	54.5	30	18 44	19 09	19 40	18 01	18 35	19 06	19 35					
	03	223 47.0 45.5	223 54.5 14.3	17 43.3	11.7	54.5	20	18 31	18 54	19 21	17 39	18 18	18 53	19 27					
	04	238 47.1 44.8	238 27.8 14.3	17 31.6	11.8	54.5	N 10	18 19	18 41	19 06	17 19	18 02	18 42	19 20					
	05	253 47.2 44.0	253 01.1 14.4	17 19.8	11.9	54.5	0	18 08	18 30	18 55	17 01	17 47	18 31	19 13					
	06	268 47.3 N14 43.2	267 34.5 14.4	N 17 07.9	12.0	54.5	S 10	17 58	18 19	18 45	16 43	17 33	18 20	19 07					
	07	283 47.4 42.5	282 07.9 14.5	16 55.9	12.0	54.5	20	17 46	18 09	18 35	16 23	17 17	18 09	19 00					
	08	298 47.5 41.7	296 41.4 14.5	16 43.9	12.2	54.5	30	17 34	17 59	18 27	16 01	16 58	17 55	18 52					
	09	313 47.6 41.0	311 14.9 14.6	16 31.7	12.1	54.6	35	17 26	17 53	18 23	15 47	16 48	17 48	18 47					
	10	328 47.7 40.2	325 48.5 14.7	16 19.6	12.3	54.6	40	17 18	17 46	18 18	15 32	16 35	17 39	18 41					
	11	343 47.8 39.4	340 22.2 14.6	16 07.3	12.3	54.6	45	17 09	17 39	18 14	15 13	16 21	17 28	18 35					
	12	358 48.0 N14 38.7	354 55.8 14.7	N 15 55.0	12.4	54.6	S 50	16 57	17 31	18 09	14 50	16 02	17 15	18 27					
	13	13 48.1 37.9	9 29.5 14.8	15 42.6	12.5	54.6	52	16 51	17 27	18 07	14 39	15 54	17 09	18 24					
	14	28 48.2 37.2	24 03.3 14.8	15 30.1	12.5	54.6	54	16 45	17 23	18 05	14 26	15 44	17 03	18 20					
	15	43 48.3 36.4	38 37.1 14.9	15 17.6	12.6	54.6	56	16 39	17 19	18 03	14 11	15 33	16 55	18 16					
	16	58 48.4 35.6	53 11.0 14.9	15 05.0	12.7	54.7	58	16 31	17 14	18 01	13 53	15 21	16 47	18 11					
	17	73 48.5 34.9	67 44.9 14.9	14 52.3	12.7	54.7	S 60	16 23	17 09	17 58	13 32	15 06	16 37	18 05					
	18	88 48.6 N14 34.1	82 18.8 15.0	N 14 39.6	12.8	54.7													
	19	103 48.7 33.3	96 52.8 15.0	14 26.8	12.9	54.7	Day	Eqn. of Time	Mer. Pass.	MOON									
	20	118 48.8 32.6	111 26.8 15.0	14 13.9	12.9	54.7		00 ^h	12 ^h	Upper	Lower	Age	Phase						
	21	133 49.0 31.8	126 00.8 15.1	14 01.0	13.0	54.7	m s	05 13	05 08	12 05	10 50	23 13	28						
	22	148 49.1 31.0	140 34.9 15.2	13 48.0	13.0	54.7	11	05 04	04 59	12 05	11 37	23 59	29						
23	163 49.2 30.3	155 09.1 15.2	13 35.0	13.1	54.8	12	04 54	04 48	12 05	12 21									

G.M.T.		ARIES		VENUS -3.5		MARS -0.6		JUPITER -1.3		SATURN +0.5		STARS														
G.H.A.		G.H.A.		Dec.		G.H.A.		Dec.		G.H.A.		Dec.		Name	S.H.A.	Dec.										
d	h	°	'	°	'	°	'	°	'	°	'	°	'		°	'										
T H U R S D A Y	14 00	322	14.4	218	57.4	N 21	38.1	74	29.4	S 25	11.6	137	25.8	S 0	49.2	284	54.0	N 12	04.4	Acamar	315	43.2	S	40	25.1	
	01	337	16.8	233	56.7		38.0	89	30.8		11.7	152	27.9		49.4	299	56.4		04.4	Achernar	335	50.7	S	57	23.0	
	02	352	19.3	248	56.1		37.8	104	32.1		11.9	167	29.9		49.6	314	58.8		04.4	Acrux	173	47.2	S	62	56.0	
	03		7 21.8	263	55.5		37.7	119	33.5		12.0	182	32.0		49.7	330	01.2		04.4	Adhara	255	38.8	S	28	55.5	
	04		22 24.2	278	54.8		37.6	134	34.8		12.1	197	34.0		49.9	345	03.7		04.4	Aldebaran	291	27.5	N	16	27.1	
	05		37 26.7	293	54.2		37.5	149	36.2		12.3	212	36.0		50.1		0 06.1		04.4							
	06		52 29.2	308	53.5	N 21	37.3	164	37.5	S 25	12.4	227	38.1	S 0	50.3	15	08.5	N 12	04.4	Allioth	166	49.6	N	56	07.7	
	07		67 31.6	323	52.9		37.2	179	38.8		12.5	242	40.1		50.5	30	11.0		04.4	Alkaid	153	24.8	N	49	28.1	
	08		82 34.1	338	52.2		37.1	194	40.2		12.7	257	42.2		50.7	45	13.4		04.4	Al Na'ir	28	24.5	S	47	06.4	
	09		97 36.6	353	51.6		36.9	209	41.5		12.8	272	44.2		50.9	60	15.8		04.4	Anilam	276	20.1	S	1	12.4	
	10		112 39.0		8 50.9		36.8	224	42.9		12.9	287	46.3		51.0	75	18.3		04.4	Alphard	218	28.9	S	8	31.4	
	11		127 41.5		23 50.3		36.7	239	44.2		13.0	302	48.3		51.2	90	20.7		04.4							
	12		142 44.0		38 49.7	N 21	36.5	254	45.5	S 25	13.2	317	50.4	S 0	51.4	105	23.1	N 12	04.4	Alphecca	126	38.9	N	26	49.1	
	13		157 46.4		53 49.0		36.4	269	46.9		13.3	332	52.4		51.6	120	25.6		04.4	Alpheratz	358	17.6	N	28	55.4	
	14		172 48.9		68 48.4		36.3	284	48.2		13.4	347	54.5		51.8	135	28.0		04.3	Altair	62	40.2	N	8	47.2	
	15		187 51.3		83 47.7		36.1	299	49.6		13.6		2 56.5		52.0	150	30.4		04.3	Ankaa	353	47.7	S	42	28.0	
	16		202 53.8		98 47.1		36.0	314	50.9		13.7	17	58.6		52.2	165	32.9		04.3	Antares	113	06.8	S	26	22.1	
	17		217 56.3	113	46.4		35.9	329	52.2		13.8	33	00.6		52.3	180	35.3		04.3							
	18		232 58.7	128	45.8	N 21	35.7	344	53.6	S 25	14.0	48	02.6	S 0	52.5	195	37.7	N 12	04.3	Arcturus	146	25.9	N	19	20.5	
	19		248 01.2	143	45.1		35.6	359	54.9		14.1	63	04.7		52.7	210	40.2		04.3	Atria	108	38.2	S	68	58.8	
	20		263 03.7	158	44.5		35.4	14	56.2		14.2	78	06.7		52.9	225	42.6		04.3	Avior	234	32.4	S	59	24.4	
	21		278 06.1	173	43.8		35.3	29	57.6		14.3	93	08.8		53.1	240	45.0		04.3	Bellatrix	279	07.6	N	6	19.6	
	22		293 08.6	188	43.2		35.1	44	58.9		14.5	108	10.8		53.3	255	47.5		04.3	Betelgeuse	271	37.3	N	7	24.4	
23		308 11.1	203	42.5		35.0	60	00.2		14.6	123	12.9		53.5	270	49.9		04.3								
F R I D A Y	15 00	323	13.5	218	41.9	N 21	34.9	75	01.5	S 25	14.7	138	14.9	S 0	53.7	285	52.3	N 12	04.3	Canopus	264	11.2	S	52	40.3	
	01	338	16.0	233	41.3		34.7	90	02.9		14.9	153	17.0		53.8	300	54.8		04.3	Capella	281	23.5	N	45	58.1	
	02	353	18.4	248	40.6		34.6	105	04.2		15.0	168	19.0		54.0	315	57.2		04.3	Deneb	49	53.7	N	45	10.3	
	03		8 20.9	263	40.0		34.4	120	05.5		15.1	183	21.1		54.2	330	59.6		04.3	Denebola	183	07.5	N	14	44.6	
	04		23 23.4	278	39.3		34.3	135	06.8		15.3	198	23.1		54.4	346	02.1		04.3	Diphda	349	28.7	S	18	08.9	
	05		38 25.8	293	38.7		34.1	150	08.2		15.4	213	25.1		54.6		1 04.5		04.3							
	06		53 28.3	308	38.0	N 21	34.0	165	09.5	S 25	15.5	228	27.2	S 0	54.8	16	06.9	N 12	04.3	Dubhe	194	32.3	N	61	55.1	
	07		68 30.8	323	37.4		33.8	180	10.8		15.6	243	29.2		55.0	31	09.4		04.3	El Nath	278	54.6	N	28	35.1	
	08		83 33.2	338	36.7		33.6	195	12.1		15.8	258	31.3		55.1	46	11.8		04.3	Eltanin	91	01.2	N	51	29.6	
	09		98 35.7	353	36.1		33.5	210	13.4		15.9	273	33.3		55.3	61	14.2		04.3	Enif	34	19.2	N	9	44.4	
	10		113 38.2		8 35.4		33.3	225	14.8		16.0	288	35.4		55.5	76	16.7		04.3	Fomalhaut	15	59.9	S	29	46.9	
	11		128 40.6		23 34.8		33.2	240	16.1		16.2	303	37.4		55.7	91	19.1		04.3							
	12		143 43.1	38	34.1	N 21	33.0	255	17.4	S 25	16.3	318	39.4	S 0	55.9	106	21.5	N 12	04.3	Gacrux	172	38.5	S	56	56.8	
	13		158 45.5	53	33.5		32.9	270	18.7		16.4	333	41.5		56.1	121	24.0		04.3	Glenah	176	26.6	S	17	22.4	
	14		173 48.0	68	32.8		32.7	285	20.0		16.5	348	43.5		56.3	136	26.4		04.3	Hadar	149	35.4	S	60	13.9	
	15		188 50.5	83	32.2		32.5	300	21.3		16.7		3 45.6		56.5	151	28.9		04.3	Hamal	328	38.0	N	23	19.2	
	16		203 52.9	98	31.5		32.4	315	22.7		16.8	18	47.6		56.6	166	31.3		04.3	Kaus Aust.	84	27.3	S	34	24.2	
	17		218 55.4	113	30.9		32.2	330	24.0		16.9	33	49.7		56.8	181	33.7		04.3							
	18		233 57.9	128	30.2	N 21	32.1	345	25.3	S 25	17.1	48	51.7	S 0	57.0	196	36.2	N 12	04.3	Kochab	137	18.1	N	74	17.0	
	19		249 00.3	143	29.6		31.9	0	26.6		17.2	63	53.8		57.2	211	38.6		04.3	Markab	14	11.0	N	15	02.5	
	20		264 02.8	158	28.9		31.7	15	27.9		17.3	78	55.8		57.4	226	41.0		04.3	Menkar	314	49.6	N	3	58.5	
	21		279 05.3	173	28.3		31.6	30	29.2		17.5	93	57.8		57.6	241	43.5		04.3	Menkent	148	46.8	S	36	13.5	
	22		294 07.7	188	27.6		31.4	45	30.5		17.6	108	59.9		57.8	256	45.9		04.3	Miaplacidus	221	48.1	S	69	35.4	
23		309 10.2	203	27.0		31.2	60	31.8		17.7	124	01.9		58.0	271	48.4		04.3								
S A T U R D A Y	16 00	324	12.7	218	26.4	N 21	31.1	75	33.1	S 25	17.8	139	04.0	S 0	58.1	286	50.8	N 12	04.3	Mirfak	309	27.9	N	49	45.2	
	01	339	15.1	233	25.7		30.9	90	34.4		18.0	154	06.0		58.3	301	53.2		04.3	Nunki	76	38.9	S	26	20.3	
	02	354	17.6	248	25.1		30.7	105	35.7		18.1	169	08.1		58.5	316	55.7		04.3	Peacock	54	10.4	S	56	50.1	
	03		9 20.0	263	24.4		30.5	120	37.0		18.2	184	10.1		58.7	331	58.1		04.3	Pollux	244	08.4	N	28	06.2	
	04		24 22.5	278	23.8		30.4	135	38.3		18.4	199	12.1		58.9	347	00.6		04.3	Procyon	245	34.5	N	5	18.5	
	05		39 25.0	293	23.1		30.2	150	39.6		18.5	214	14.2		59.1		2 03.0		04.3							
	06		54 27.4	308	22.5	N 21	30.0	165	40.9	S 25	18.6	229	16.2	S 0	59.3	17	05.4	N 12	04.3	Rasalhague	96	36.9	N	12	34.9	
	07		69 29.9	323	21.8		29.8	180	42.2		18.7	244	18.3		59.5	32	07.9		04.3	Regulus	208	18.9	N	12	07.2	
	08		84 32.4	338	21.2		29.7	195	43.5		18.9	259	20.3		59.6	47	10.3		04.3	Rigel	281	44.0	S	8	13.8	
	09		99 34.8	353	20.5		29.5	210	44.8		19.0	274	22.3		0 59.8	62	12.8		04.3	Rigel Kent.	140	37.3	S	60	42.9	
	10		114 37.3		8 19.9		29.3	225	46.1		19.1	289	24.4		1 00.0	77	15.2		04.3	Sabik	102	50.3	S	15	41.4	
	11		129 39.8		23 19.2		29.1	240	47.4		19.3	304	26.4		00.2	92	17.6		04.3							
	12		144 42.2	38	18.6	N 21	28.9	255	48.7	S 25	19.4	319	28.5	S 1	00.4	107	20.1	N 12	04.3	Schedar	350	18.2	N	56	22.2	
	13		159 44.7	53	17.9		28.7	270	50.0		19.5	334	30.5		00.6	122	22.5		04.3	Shaula	97	06.6	S	37	05.2	
	14		174 47.2	68	17.3		28.6	285	51.3		19.6	349	32.5		00.8	137	25.0		04.3	Sirius	259	03.1	S			

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G.M.T.		ARIES		VENUS -3-5		MARS -0-6		JUPITER -1-3		SATURN +0-4		STARS		
		G.H.A.		G.H.A. Dec.		G.H.A. Dec.		G.H.A. Dec.		G.H.A. Dec.		Name S.H.A. Dec.		
d	h	°	'	°	'	°	'	°	'	°	'	°	'	°
17	00	325 11-8		218 10-7 N 21	26-7	76 04-2 S 25	20-9	139 53-0 S	1 02-7	287 49-4 N 12	04-2	Acamar	315 43-2	S 40 25-1
	01	340 14-3		233 10-1	26-5	91 05-5	21-0	154 55-0	02-8	302 51-8	04-2	Achernar	335 50-7	S 57 23-0
	02	355 16-7		248 09-4	26-3	106 06-8	21-2	169 57-0	03-0	317 54-3	04-2	Accrus	173 47-2	S 62 56-0
	03	10 19-2		263 08-8	26-1	121 08-0	21-3	184 59-1	03-2	332 56-7	04-2	Adhara	255 38-8	S 28 55-5
	04	25 21-7		278 08-1	25-9	136 09-3	21-4	200 01-1	03-4	347 59-1	04-2	Aldebaran	291 27-4	N 16 27-1
	05	40 24-1		293 07-5	25-7	151 10-6	21-6	215 03-1	03-6	3 01-6	04-2			
	06	55 26-6		308 06-8 N 21	25-5	166 11-9 S 25	21-7	230 05-2 S	1 03-8	18 04-0 N 12	04-2	Alioth	166 49-7	N 56 07-7
	07	70 29-0		323 06-2	25-3	181 13-2	21-8	245 07-2	04-0	33 06-5	04-2	Alkaid	153 24-8	N 49 28-1
	08	85 31-5		338 05-5	25-1	196 14-4	21-9	260 09-3	04-2	48 08-9	04-2	Al Na'ir	28 24-4	S 47 06-5
S	09	100 34-0		353 04-9	24-9	211 15-7	22-1	275 11-3	04-3	63 11-4	04-2	Alnilam	276 20-1	S 1 12-9
U	10	115 36-4		8 04-2	24-6	226 17-0	22-2	290 13-3	04-5	78 13-8	04-2	Alphard	218 28-9	S 8 31-4
N	11	130 38-9		23 03-6	24-4	241 18-3	22-3	305 15-4	04-7	93 16-2	04-2			
D	12	145 41-4		38 02-9 N 21	24-2	256 19-5 S 25	22-4	320 17-4 S	1 04-9	108 18-7 N 12	04-2	Alphecca	126 38-9	N 26 49-1
A	13	160 43-8		53 02-3	24-0	271 20-8	22-6	335 19-5	05-1	123 21-1	04-1	Alpheratz	358 17-6	N 28 55-4
Y	14	175 46-3		68 01-6	23-8	286 22-1	22-7	350 21-5	05-3	138 23-6	04-1	Altair	62 40-2	N 8 47-2
	15	190 48-8		83 01-0	23-6	301 23-3	22-8	5 23-5	05-5	153 26-0	04-1	Ankaa	353 47-7	S 42 28-0
	16	205 51-2		98 00-3	23-4	316 24-6	23-0	20 25-6	05-7	168 28-5	04-1	Antares	113 06-8	S 26 22-1
	17	220 53-7		112 59-7	23-2	331 25-9	23-1	35 27-6	05-9	183 30-9	04-1			
	18	235 56-1		127 59-0 N 21	23-0	346 27-1 S 25	23-2	50 29-6 S	1 06-0	198 33-4 N 12	04-1	Arcturus	146 25-9	N 19 20-5
	19	250 58-6		142 58-4	22-8	1 28-4	23-3	65 31-7	06-2	213 35-8	04-1	Atria	108 38-2	S 68 58-9
	20	266 01-1		157 57-7	22-5	16 29-7	23-5	80 33-7	06-4	228 38-3	04-1	Avior	234 32-3	S 59 24-4
	21	281 03-5		172 57-1	22-3	31 30-9	23-6	95 35-8	06-6	243 40-7	04-1	Bellatrix	279 07-6	N 6 19-6
	22	296 06-0		187 56-4	22-1	46 32-2	23-7	110 37-8	06-8	258 43-2	04-1	Betelgeuse	271 37-2	N 7 24-4
	23	311 08-5		202 55-8	21-9	61 33-5	23-8	125 39-8	07-0	273 45-6	04-1			
18	00	326 10-9		217 55-1 N 21	21-7	76 34-7 S 25	24-0	140 41-9 S	1 07-2	288 48-0 N 12	04-1	Canopus	264 11-2	S 52 40-3
	01	341 13-4		232 54-5	21-4	91 36-0	24-1	155 43-9	07-4	303 50-5	04-1	Capella	281 23-5	N 45 58-1
	02	356 15-9		247 53-8	21-2	106 37-3	24-2	170 45-9	07-6	318 52-9	04-1	Deneb	49 53-7	N 45 10-3
	03	11 18-3		262 53-2	21-0	121 38-5	24-3	185 48-0	07-8	333 55-4	04-1	Denebola	183 07-5	N 14 44-6
	04	26 20-8		277 52-5	20-8	136 39-8	24-5	200 50-0	07-9	348 57-8	04-1	Diphda	349 28-7	S 18 08-9
	05	41 23-2		292 51-9	20-6	151 41-0	24-6	215 52-0	08-1	4 00-3	04-1			
	06	56 25-7		307 51-2 N 21	20-3	166 42-3 S 25	24-7	230 54-1 S	1 08-3	19 02-7 N 12	04-1	Dubhe	194 32-3	N 61 55-1
	07	71 28-2		322 50-6	20-1	181 43-6	24-9	245 56-1	08-5	34 05-2	04-1	Elath	278 54-6	N 28 35-1
	08	86 30-6		337 49-9	19-9	196 44-8	25-0	260 58-2	08-7	49 07-6	04-1	Eltanin	91 01-2	N 51 29-6
M	09	101 33-1		352 49-3	19-6	211 46-1	25-1	276 00-2	08-9	64 10-1	04-0	Enif	34 19-2	N 9 44-2
O	10	116 35-6		7 48-6	19-4	226 47-3	25-2	291 02-2	09-1	79 12-5	04-0	Fomalhaut	15 59-9	S 29 46-9
N	11	131 38-0		22 48-0	19-2	241 48-6	25-4	306 04-3	09-3	94 15-0	04-0			
D	12	146 40-5		37 47-3 N 21	19-0	256 49-8 S 25	25-5	321 06-3 S	1 09-5	109 17-4 N 12	04-0	Gacrux	172 38-5	S 56 56-8
A	13	161 43-0		52 46-7	18-7	271 51-1	25-6	336 08-3	09-7	124 19-9	04-0	Gienah	176 26-6	S 17 22-4
Y	14	176 45-4		67 46-0	18-5	286 52-3	25-7	351 10-4	09-8	139 22-3	04-0	Hadar	149 35-5	S 60 13-9
	15	191 47-9		82 45-4	18-3	301 53-6	25-9	6 12-4	10-0	154 24-8	04-0	Hamal	328 38-0	N 23 19-2
	16	206 50-4		97 44-7	18-0	316 54-8	26-0	21 14-4	10-2	169 27-2	04-0	Kaus Aust.	84 27-3	S 34 24-2
	17	221 52-8		112 44-1	17-8	331 56-1	26-1	36 16-5	10-4	184 29-7	04-0			
	18	236 55-3		127 43-4 N 21	17-5	346 57-3 S 25	26-2	51 18-5 S	1 10-6	199 32-1 N 12	04-0	Kochab	137 18-2	N 74 17-0
	19	251 57-7		142 42-7	17-3	1 58-6	26-4	66 20-5	10-8	214 34-6	04-0	Markab	14 11-0	N 15 02-6
	20	267 00-2		157 42-1	17-1	16 59-8	26-5	81 22-6	11-0	229 37-0	04-0	Menkar	314 49-6	N 3 58-5
	21	282 02-7		172 41-4	16-8	32 01-1	26-6	96 24-6	11-2	244 39-5	04-0	Menkent	148 46-9	S 36 13-5
	22	297 05-1		187 40-8	16-6	47 02-3	26-7	111 26-6	11-4	259 41-9	04-0	Miaplacidus	221 48-1	S 69 35-3
	23	312 07-6		202 40-1	16-3	62 03-5	26-8	126 28-7	11-6	274 44-4	04-0			
19	00	327 10-1		217 39-5 N 21	16-1	77 04-8 S 25	27-0	141 30-7 S	1 11-8	289 46-8 N 12	03-9	Mirfak	309 27-9	N 49 45-2
	01	342 12-5		232 38-8	15-9	92 06-0	27-1	156 32-7	11-9	304 49-3	03-9	Nunki	76 38-9	S 26 20-3
	02	357 15-0		247 38-2	15-6	107 07-3	27-2	171 34-8	12-1	319 51-7	03-9	Peacock	54 10-4	S 56 50-1
	03	12 17-5		262 37-5	15-4	122 08-5	27-3	186 36-8	12-3	334 54-2	03-9	Pollux	244 08-4	N 28 06-2
	04	27 19-9		277 36-9	15-1	137 09-7	27-5	201 38-8	12-5	349 56-6	03-9	Procyon	245 34-5	N 5 18-5
	05	42 22-4		292 36-2	14-9	152 11-0	27-6	216 40-9	12-7	4 59-1	03-9			
	06	57 24-9		307 35-6 N 21	14-6	167 12-2 S 25	27-7	231 42-9 S	1 12-9	20 01-5 N 12	03-9	Rasalhague	96 36-9	N 12 34-9
	07	72 27-3		322 34-9	14-4	182 13-5	27-8	246 44-9	13-1	35 04-0	03-9	Regulus	208 18-9	N 12 07-2
	08	87 29-8		337 34-3	14-1	197 14-7	28-0	261 47-0	13-3	50 06-4	03-9	Rigel	281 43-9	S 8 13-8
	09	102 32-2		352 33-6	13-9	212 15-9	28-1	276 49-0	13-5	65 08-9	03-9	Rigel Kent.	140 37-3	S 60 42-9
	10	117 34-7		7 33-0	13-6	227 17-2	28-2	291 51-0	13-7	80 11-3	03-9	Sabik	102 50-3	S 15 41-4
	11	132 37-2		22 32-3	13-4	242 18-4	28-3	306 53-1	13-8	95 13-8	03-9			
	12	147 39-6		37 31-7 N 21	13-1	257 19-6 S 25	28-5	321 55-1 S	1 14-0	110 16-2 N 12	03-9	Schedar	350 18-2	N 56 22-2
	13	162 42-1		52 31-0	12-8	272 20-9	28-6	336 57-1	14-2	125 18-7	03-9	Shaula	97 06-6	S 37 05-2
	14	177 44-6		67 30-4	12-6	287 22-1	28-7	351 59-2	14-4	140 21-2	03-8	Sirius	259 03-1	S 16 40-1
	15	192 47-0		82 29-7	12-3	302 23-3	28-8	7 01-2	14-6	155 23-6	03-8	Spica	159 06-3	S 11 00-2
	16	207 49-5		97 29-1	12-1	317 24-5	29-0	22 03-2	14-8	170 26-1	03-8	Suhail	223 17-4	S 43 18-4
	17	222 52-0		112 28-4	11-8	332 25-8	29-1	37 05-3	15-0	185 28-5	03-8			
	18	237 54-4		127 27-7 N 21	11-5	347 27-0 S 25	29-2	52 07-3 S	1 15-2	200 31-0 N 12	03-8	Vega	81 01-1	N 38 45-4
	19	252 56-9		142 27-1	11-3	2 28-2	29-3	67 09-3	15-4	215 33-4	03-8	Zuben'ubi	137 42-1	S 15 55-1
	20	267 59-4		157 26-4	11-0	17 29-4	29-5	82 11-4	15-6	230 35				

G.M.T.		SUN				MOON				Lat.	Twilight		Sun-rise	Moonrise				
		G.H.A.		Dec.		G.H.A.		Dec.			Naut.	Civil		17	18	19	20	
d	h									°	h	m	h	m	h	m	h	m
1700 01 02 03 04 05 06 07 08 S 09 U 10 N 11 D 12 A 13 Y 14 15 16 17 18 19 20 21 22 23	00	178	58.1	N 13	33.2	139	24.3	15.3	S	4	03.0	15.2	56.1	N 72	10 26	12 54	15 33	18 01
	01	193	58.2		32.4	153	58.6	15.3		4	18.2	15.1	56.1	N 70	10 16	12 27	15 33	18 01
	02	208	58.3		31.6	168	32.9	15.3		4	33.3	15.1	56.1	68	10 08	12 07	14 32	17 01
	03	223	58.4		30.8	183	07.2	15.3		4	48.4	15.1	56.2	66	10 01	11 51	13 57	16 01
	04	238	58.6		30.0	197	41.5	15.2		5	03.5	15.1	56.2	64	01 01	02 58	11 38	13 33
	05	253	58.7		29.2	212	15.7	15.1		5	18.6	15.0	56.2	62	01 49	03 16	11 28	13 13
	06	268	58.8	N 13	28.4	226	49.8	15.1	S	5	33.6	15.1	56.2	60	02 18	03 30	11 18	12 58
	07	283	59.0		27.6	241	23.9	15.1		5	48.7	15.1	56.2	N 58	02 39	03 43	11 10	12 45
	08	298	59.1		26.8	255	58.0	15.0		6	03.8	15.0	56.3	56	02 56	03 53	11 03	12 33
	S 09	313	59.2		26.0	270	32.0	15.0		6	18.8	15.0	56.3	54	03 11	04 03	10 57	12 23
	U 10	328	59.4		25.2	285	06.0	14.9		6	33.8	15.1	56.3	52	03 23	04 11	10 48	12 15
	N 11	343	59.5		24.4	299	39.9	14.9		6	48.9	14.9	56.3	50	03 33	04 18	10 47	12 07
	D 12	358	59.6	N 13	23.6	314	13.8	14.8	S	7	03.8	15.0	56.4	45	03 54	04 33	10 36	11 50
	A 13	13	59.8		22.8	328	47.6	14.8		7	18.8	15.0	56.4	N 40	04 10	04 45	10 27	11 37
	Y 14	14	59.9		22.0	343	21.4	14.7		7	33.8	14.9	56.4	35	04 23	04 55	10 19	11 25
	15	15	00.0		21.2	357	55.1	14.6		7	48.7	14.9	56.4	30	04 34	05 04	10 13	11 15
	16	16	00.2		20.4	12	28.7	14.6		8	03.6	14.9	56.5	20	04 51	05 18	10 01	10 58
	17	17	00.3		19.6	27	02.3	14.6		8	18.5	14.9	56.5	N 10	05 04	05 29	09 52	10 44
	18	18	00.4	N 13	18.8	41	35.9	14.5	S	8	33.4	14.9	56.5	0	05 15	05 39	09 42	10 30
	19	19	00.6		18.0	56	09.4	14.4		8	48.3	14.8	56.5	S 10	05 23	05 48	09 33	10 16
	20	20	00.7		17.2	70	42.8	14.3		9	03.1	14.8	56.6	20	05 31	05 57	09 24	10 02
	21	21	00.8		16.4	85	16.1	14.3		9	17.9	14.7	56.6	30	05 38	06 06	09 13	09 46
	22	22	01.0		15.6	99	49.4	14.2		9	32.6	14.8	56.6	35	05 42	06 11	09 06	09 36
	23	23	01.1		14.8	114	22.6	14.2		9	47.4	14.7	56.6	40	05 45	06 17	08 59	09 25
	1800	00	179	01.2	N 13	14.0	128	55.8	14.1	S 10	10	02.1	14.7	56.7	S 50	05 52	06 29	08 51
01	01	194	01.4		13.2	143	28.9	14.0		10	16.8	14.6	56.7	52	05 53	06 33	08 37	08 51
02	02	209	01.5		12.4	158	01.9	14.0		10	31.4	14.6	56.7	54	05 54	06 36	08 23	08 43
03	03	224	01.6		11.6	172	34.9	13.8		10	46.0	14.6	56.7	56	05 56	06 39	08 18	08 34
04	04	239	01.8		10.8	187	07.7	13.9		11	00.6	14.5	56.8	58	05 57	06 43	08 08	08 25
05	05	254	01.9		10.0	201	40.6	13.7		11	15.1	14.5	56.8	S 60	05 59	06 48	07 32	08 15
06	06	269	02.1	N 13	09.2	216	13.3	13.7	S 11	11	29.6	14.5	56.8					
07	07	284	02.2		08.4	230	46.0	13.5		11	44.1	14.4	56.8					
08	08	299	02.3		07.6	245	18.5	13.5		11	58.5	14.4	56.9					
M 09	09	314	02.5		06.8	259	51.0	13.5		12	12.9	14.4	56.9					
O 10	10	329	02.6		06.0	274	23.5	13.3		12	27.3	14.3	56.9					
N 11	11	344	02.7		05.2	288	55.8	13.3		12	41.6	14.2	56.9					
D 12	12	359	02.9	N 13	04.3	303	28.1	13.2	S 12	12	55.8	14.2	57.0					
A 13	13	14	03.0		03.5	318	00.3	13.1		13	10.0	14.2	57.0	N 70	20 54	22 47	17 30	19 07
Y 14	14	29	03.2		02.7	332	32.4	13.0		13	24.2	14.1	57.0	68	20 34	21 59	19 43	18 33
15	15	44	03.3		01.9	347	04.4	12.9		13	38.3	14.1	57.0	66	20 18	21 29	19 52	19 08
16	16	59	03.4		01.1	1	36.3	12.8		13	52.4	14.0	57.1	64	20 05	21 07	20 00	19 49
17	17	74	03.6		00.3	16	08.1	12.8		14	06.4	13.9	57.1	62	19 55	20 49	20 06	19 54
18	18	89	03.7	N 12	59.5	30	39.9	12.7	S 14	14	20.3	13.9	57.1	60	19 45	20 35	20 12	20 11
19	19	104	03.8		58.7	45	11.6	12.5		14	34.2	13.9	57.1	N 58	19 37	20 23	20 17	20 20
20	20	119	04.0		57.9	59	43.1	12.5		14	48.1	13.8	57.2	56	19 30	20 13	20 22	20 28
21	21	134	04.1		57.1	74	14.6	12.4		15	01.9	13.7	57.2	54	19 24	20 04	20 26	20 35
22	22	149	04.3		56.2	88	46.0	12.3		15	15.6	13.7	57.2	52	19 18	19 56	20 43	20 42
23	23	164	04.4		55.4	103	17.3	12.2		15	29.3	13.6	57.2	50	19 13	19 49	20 33	20 47
1900	00	179	04.6	N 12	54.6	117	48.5	12.1	S 15	15	42.9	13.5	57.3	45	19 02	19 34	20 12	20 11
01	01	194	04.7		53.8	132	19.6	12.0		15	56.4	13.5	57.3	N 40	18 53	19 22	20 46	21 10
02	02	209	04.8		53.0	146	50.6	11.9		16	09.9	13.4	57.3	35	18 45	19 12	20 52	21 19
03	03	224	05.0		52.2	161	21.5	11.8		16	23.3	13.4	57.3	30	18 38	19 03	20 57	21 27
04	04	239	05.1		51.4	175	52.3	11.7		16	36.7	13.3	57.4	20	18 27	18 50	21 05	21 41
05	05	254	05.3		50.6	190	23.0	11.6		16	50.0	13.2	57.4	N 10	18 17	18 38	21 12	21 53
06	06	269	05.4	N 12	49.7	204	53.6	11.5	S 17	17	03.2	13.1	57.4	0	18 07	18 29	21 19	22 05
07	07	284	05.5		48.9	219	24.1	11.4		17	16.3	13.1	57.5	S 10	17 58	18 19	21 26	22 16
08	08	299	05.7		48.1	233	54.5	11.2		17	29.4	13.0	57.5	20	17 48	18 11	21 33	22 28
M 09	09	314	05.8		47.3	248	24.7	11.2		17	42.4	12.9	57.5	30	17 37	18 02	21 42	22 42
U 10	10	329	06.0		46.5	262	54.9	11.1		17	55.3	12.9	57.5	35	17 31	17 57	21 47	22 51
N 11	11	344	06.1		45.7	277	25.0	11.0		18	08.2	12.7	57.6	40	17 24	17 52	21 52	23 00
D 12	12	359	06.3	N 12	44.8	291	55.0	10.8	S 18	18	20.9	12.7	57.6	45	17 15	17 46	21 59	23 11
A 13	13	14	06.4		44.0	306	24.8	10.7		18	33.6	12.6	57.6	S 50	17 05	17 39	22 06	23 24
Y 14	14	29	06.5		43.2	320	54.5	10.7		18	46.2	12.5	57.6	52	17 01	17 36	22 10	23 31
15	15	44	06.7		42.4	335	24.2	10.5		18	58.7	12.5	57.7	54	16 56	17 33	22 14	23 38
16	16	59	06.8		41.6	349	53.7	10.4		19	11.2	12.3	57.7	56	16 50	17 29	22 19	23 45
17	17	74	07.0		40.8	4	23.1	10.3		19	23.5	12.3	57.7	58	16 44	17 25	22 24	23 54
18	18	89	07.1	N 12	39.9	18	52.4	10.2	S 19	19	35.8	12.2	57.8	S 60	16 37	17 21	22 29	24 04
19	19	104	07.3		39.1	33	21.6	10.0		19	48.0	12.0	57.8					
20	20	119	07.4		38.3	47	50.6	10.0		20	00.0	12.0	57.8					
21	21	134	07.6		37.5	62	19.6	9.8		20	12.0	11.9	57.8					
22	22	149	07.7		36.7	76	48.4	9.7		20	23.9	11.8	57.9					
23	23	164	07.8		35.8	91	17.1	9.6		20	35.7	11.7	57.9					
S.D. 15-8 d 0-8 S.D. 15-4 15-5 15-7																		
										SUN		MOON						
										Day	Eqn. of Time 00h	Mer. Pass. 12h	Mer. Upper	Pass. Lower	Age			
											m s	m s	h m	h m	d			
										17	04 08	04 02	12 04	15 09	02 47	04		
										18	03 55	03 49	12 04	15 53	03 31	05		
										19	03 42	03 35	12 04	16 42	04 17	06		

G.M.T.	ARIES		VENUS -3.5		MARS -0.5		JUPITER -1.3		SATURN +0.4		STARS		
	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h													
20 00	328 09.2	217 23.8 N 21 10.0	77 34.3 S 25 29.9	142 19.5 S 1 16.3	290 45.7 N 12 03.8	Acamar	315 43.1	S 40 25.1					
	343 11.7	232 23.2 09.7	92 35.6 30.1	157 21.5 16.5	305 48.2 03.7	Achernar	335 50.7	S 57 23.1					
	358 14.1	247 22.5 09.4	107 36.8 30.2	172 23.6 16.7	320 50.6 03.7	Acruz	173 47.3	S 62 56.0					
	13 16.6	262 21.9 09.1	122 38.0 30.3	187 25.6 16.9	335 53.1 03.7	Adhara	255 38.8	S 28 55.4					
	28 19.1	277 21.2 08.9	137 39.2 30.4	202 27.6 17.1	350 55.5 03.7	Aldebaran	291 27.4	N 16 27.1					
06	43 21.5	292 20.6 08.6	152 40.4 30.6	217 29.7 17.3	5 58.0 03.7								
	58 24.0	307 19.9 N 21 08.3	167 41.6 S 25 30.7	232 31.7 S 1 17.5	21 00.4 N 12 03.7	Alioth	166 49.7	N 56 07.7					
	73 26.5	322 19.3 08.1	182 42.9 30.8	247 33.7 17.7	36 02.9 03.7	Alkaid	153 24.9	N 49 28.1					
	88 28.9	337 18.6 07.8	197 44.1 30.9	262 35.8 17.9	51 05.4 03.7	Al Na'ir	28 24.4	S 47 06.5					
	103 31.4	352 18.0 07.5	212 45.3 31.0	277 37.8 18.1	66 07.8 03.7	Alnilam	276 20.0	S 1 12.9					
07	118 33.8	7 17.3 07.2	227 46.5 31.2	292 39.8 18.2	81 10.3 03.7	Alphard	218 28.9	S 8 31.4					
	133 36.3	22 16.7 06.9	242 47.7 31.3	307 41.8 18.4	96 12.7 03.7								
	148 38.8	37 16.0 N 21 06.7	257 48.9 S 25 31.4	322 43.9 S 1 18.6	111 15.2 N 12 03.7	Alphecca	126 38.9	N 26 49.1					
	163 41.2	52 15.4 06.4	272 50.1 31.5	337 45.9 18.8	126 17.6 03.6	Alpheratz	358 17.5	N 28 55.4					
	178 43.7	67 14.7 06.1	287 51.3 31.7	352 47.9 19.0	141 20.1 03.6	Altair	62 40.2	N 8 47.2					
12	193 46.2	82 14.1 05.8	302 52.6 31.8	7 50.0 19.2	156 22.6 03.6	Ankaa	353 47.7	S 42 28.0					
	208 48.6	97 13.4 05.5	317 53.8 31.9	22 52.0 19.4	171 25.0 03.6	Antares	113 06.8	S 26 22.1					
	223 51.1	112 12.8 05.3	332 55.0 32.0	37 54.0 19.6	186 27.5 03.6								
	238 53.6	127 12.1 N 21 05.0	347 56.2 S 25 32.1	52 56.1 S 1 19.8	201 29.9 N 12 03.6	Arcturus	146 25.9	N 19 20.5					
	253 56.0	142 11.4 04.7	2 57.4 32.3	67 58.1 20.0	216 32.4 03.6	Atria	108 38.3	S 68 58.9					
18	268 58.5	157 10.8 04.4	17 58.6 32.4	83 00.1 20.2	231 34.8 03.6	Avior	234 32.3	S 59 24.4					
	284 00.9	172 10.1 04.1	32 59.8 32.5	98 02.1 20.4	246 37.3 03.6	Bellatrix	279 07.6	N 6 19.6					
	299 03.4	187 09.5 03.8	48 01.0 32.6	113 04.2 20.6	261 39.8 03.6	Betelgeuse	271 37.2	N 7 24.4					
	314 05.9	202 08.8 03.5	63 02.2 32.7	128 06.2 20.8	276 42.2 03.6								
	329 08.3	217 08.2 N 21 03.2	78 03.4 S 25 32.9	143 08.2 S 1 20.9	291 44.7 N 12 03.5	Canopus	264 11.2	S 52 40.3					
01	344 10.8	232 07.5 02.9	93 04.6 33.0	158 10.3 21.1	306 47.1 03.5	Capella	281 23.5	N 45 58.1					
	359 13.3	247 06.9 02.6	108 05.8 33.1	173 12.3 21.3	321 49.6 03.5	Deneb	49 53.7	N 45 10.3					
	14 15.7	262 06.2 02.3	123 07.0 33.2	188 14.3 21.5	336 52.1 03.5	Denebola	183 07.5	N 14 44.6					
	29 18.2	277 05.6 02.1	138 08.2 33.3	203 16.4 21.7	351 54.5 03.5	Diphda	349 28.7	S 18 08.9					
	44 20.7	292 04.9 01.8	153 09.4 33.5	218 18.4 21.9	6 57.0 03.5								
06	59 23.1	307 04.3 N 21 01.5	168 10.6 S 25 33.6	233 20.4 S 1 22.1	21 59.4 N 12 03.5	Dubhe	194 32.3	N 61 55.1					
	74 25.6	322 03.6 01.2	183 11.8 33.7	248 22.4 22.3	37 01.9 03.5	Elnath	278 54.5	N 28 35.1					
	89 28.1	337 03.0 00.9	198 13.0 33.8	263 24.5 22.5	52 04.4 03.5	Eltanin	91 01.2	N 51 29.6					
	104 30.5	352 02.3 00.6	213 14.2 33.9	278 26.5 22.7	67 06.8 03.5	Enif	34 19.2	N 9 44.2					
	119 33.0	7 01.7 21 00.3	228 15.4 34.1	293 28.5 22.9	82 09.3 03.4	Fomalhaut	15 59.9	S 29 46.9					
11	134 35.4	22 01.0 20 59.9	243 16.6 34.2	308 30.6 23.1	97 11.8 03.4								
	149 37.9	37 00.4 N 20 59.6	258 17.8 S 25 34.3	323 32.6 S 1 23.3	112 14.2 N 12 03.4	Gacrux	172 38.6	S 56 56.7					
	164 40.4	51 59.7 59.3	273 18.9 34.4	338 34.6 23.4	127 16.7 03.4	Gienah	176 26.6	S 17 22.4					
	179 42.8	66 59.1 59.0	288 20.1 34.5	353 36.6 23.6	142 19.1 03.4	Hadar	149 35.5	S 60 13.9					
	194 45.3	81 58.4 58.7	303 21.3 34.7	8 38.7 23.8	157 21.6 03.4	Hamal	328 38.0	N 23 19.3					
15	209 47.8	96 57.8 58.4	318 22.5 34.8	23 40.7 24.0	172 24.1 03.4	Kaus Aust.	84 27.3	S 34 24.2					
	224 50.2	111 57.1 58.1	333 23.7 34.9	38 42.7 24.2	187 26.5 03.4								
	239 52.7	126 56.5 N 20 57.8	348 24.9 S 25 35.0	53 44.7 S 1 24.4	202 29.0 N 12 03.4	Kochab	137 18.3	N 74 17.0					
	254 55.2	141 55.8 57.5	3 26.1 35.1	68 46.8 24.6	217 31.5 03.4	Markab	14 11.0	N 15 02.6					
	269 57.6	156 55.2 57.2	18 27.3 35.3	83 48.8 24.8	232 33.9 03.3	Menkar	314 49.6	N 3 58.5					
20	285 00.1	171 54.5 56.9	33 28.4 35.4	98 50.8 25.0	247 36.4 03.3	Menkent	148 46.9	S 36 13.5					
	300 02.6	186 53.9 56.5	48 29.6 35.5	113 52.9 25.2	262 38.8 03.3	Miaplacidus	221 48.1	S 69 35.3					
	315 05.0	201 53.2 56.2	63 30.8 35.6	128 54.9 25.4	277 41.3 03.3								
	330 07.5	216 52.5 N 20 55.9	78 32.0 S 25 35.7	143 56.9 S 1 25.6	292 43.8 N 12 03.3	Mirfak	309 27.8	N 49 45.2					
	345 09.9	231 51.9 55.6	93 33.2 35.8	158 58.9 25.8	307 46.2 03.3	Nunki	76 38.9	S 26 20.3					
02	0 12.4	246 51.2 55.3	108 34.4 36.0	174 01.0 26.0	322 48.7 03.3	Peacock	54 10.4	S 56 50.2					
	15 14.9	261 50.6 55.0	123 35.5 36.1	189 03.0 26.1	337 51.2 03.3	Pollux	244 08.3	N 28 06.2					
	30 17.3	276 49.9 54.6	138 36.7 36.2	204 05.0 26.3	352 53.6 03.3	Procyon	245 34.5	N 5 18.5					
	45 19.8	291 49.3 54.3	153 37.9 36.3	219 07.0 26.5	7 56.1 03.2								
	60 22.3	306 48.6 N 20 54.0	168 39.1 S 25 36.4	234 09.1 S 1 26.7	22 58.6 N 12 03.2	Rasalhague	96 36.9	N 12 34.9					
06	75 24.7	321 48.0 53.7	183 40.2 36.6	249 11.1 26.9	38 01.0 03.2	Regulus	208 18.9	N 12 07.1					
	90 27.2	336 47.3 53.4	198 41.4 36.7	264 13.1 27.1	53 03.5 03.2	Rigel	281 43.9	S 8 13.8					
	105 29.7	351 46.7 53.0	213 42.6 36.8	279 15.1 27.3	68 06.0 03.2	Rigel Kent.	140 37.3	S 60 42.9					
	120 32.1	6 46.0 52.7	228 43.8 36.9	294 17.2 27.5	83 08.4 03.2	Sabik	102 50.3	S 15 41.4					
	135 34.6	21 45.4 52.4	243 44.9 37.0	309 19.2 27.7	98 10.9 03.2								
12	150 37.1	36 44.7 N 20 52.0	258 46.1 S 25 37.1	324 21.2 S 1 27.9	113 13.4 N 12 03.2	Schedar	350 18.2	N 56 22.2					
	165 39.5	51 44.1 51.7	273 47.3 37.3	339 23.2 28.1	128 15.8 03.2	Shaula	97 06.6	S 37 05.2					
	180 42.0	66 43.4 51.4	288 48.5 37.4	354 25.3 28.3	143 18.3 03.1	Sirius	259 03.1	S 16 40.1					
	195 44.4	81 42.8 51.1	303 49.6 37.5	9 27.3 28.5	158 20.7 03.1	Spica	159 06.3	S 11 00.2					
	210 46.9	96 42.1 50.7	318 50.8 37.6	24 29.3 28.7	173 23.2 03.1	Suhail	223 17.3	S 43 18.3					
16	225 49.4	111 41.5 50.4	333 52.0 37.7	39 31.3 28.9	188 25.7 03.1								
	240 51.8	126 40.8 N 20 50.1	348 53.1 S 25 37.8	54 33.4 S 1 29.1	203 28.2 N 12 03.1	Vega	81 01.1	N 38 45.4					
	255 54.3	141 40.2 49.7	3 54.3 37.9	69 35.4 29.2	218 30.6 03.1	Zuben'ubi	137 42.1	S 15 55.1					
	270 56.8	156 39.5 49.4	18 55.5 38.1	84 37.4 29.4	233 33.1 03.1								
	285 59.2	171 38.9 49.0	33 56.6 38.2	99 39.4 29.6	248 35.6 03.1								
22	301 01.7	186 38.2 48.7	48 57.8 38.3	114 41.5 29.8	263 38.0 03.0	Venus	247 59.9	h m					
	316 04.2	201 37.6 48.4	63 59.0 38.4	129 43.5 30.0	278 40.5 03.0	Mars	108 55.1	18 46					
						Jupiter	173 59.9	14 25					
Mer. Pass. 2 03.1		v -0.7 d 0.3	v 1.2 d 0.1	v 2.0 d 0.2	v 2.5 d 0.0	Saturn	322 36.4	4 32					

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise				
		G.H.A.	Dec.	G.H.A.	φ	Dec.	d		H.P.	Naut.		Civil	20	21	22	23
d	h															
20	00	179 08-0	N12 35-0	105 45-7	9-5	S 20 47-4	11-6	57-9	N 72	///	///	03 01	■	■	■	■
	01	194 08-1	34-2	120 14-2	9-3	20 59-0	11-5	58-0	N 70	///	01 42	03 24	■	■	■	■
	02	209 08-3	33-4	134 42-5	9-2	21 10-5	11-3	58-0	68	///	02 22	03 43	■	■	■	■
	03	224 08-4	32-5	149 10-7	9-1	21 21-8	11-3	58-0	66	///	02 49	03 57	■	■	■	■
	04	239 08-6	31-7	163 38-8	9-0	21 33-1	11-2	58-0	64	01 29	03 09	04 09	15 50	■	■	■
	05	254 08-7	30-9	178 06-8	8-9	21 44-3	11-1	58-1	62	02 05	03 26	04 19	15 12	17 32	■	■
WEDNESDAY	06	269 08-9	N12 30-1	192 34-7	8-7	S 21 55-4	10-9	58-1	60	02 30	03 39	04 28	14 46	16 39	18 20	19 10
	07	284 09-0	29-3	207 02-4	8-7	22 06-3	10-9	58-1	N 58	02 50	03 50	04 35	14 25	16 07	17 36	18 33
	08	299 09-2	28-4	221 30-1	8-5	22 17-2	10-7	58-2	56	03 05	04 00	04 42	14 08	15 43	17 07	18 06
	09	314 09-3	27-6	235 57-6	8-3	22 27-9	10-6	58-2	54	03 18	04 09	04 48	13 54	15 24	16 45	17 45
	10	329 09-5	26-8	250 24-9	8-3	22 38-5	10-5	58-2	52	03 29	04 16	04 53	13 41	15 08	16 26	17 27
	11	344 09-6	26-0	264 52-2	8-1	22 49-0	10-4	58-2	50	03 39	04 23	04 58	13 30	14 54	16 11	17 12
	12	359 09-8	N12 25-1	279 19-3	8-0	S 22 59-4	10-2	58-3	45	03 59	04 37	05 08	13 08	14 26	15 39	16 42
	13	14 09-9	24-3	293 46-3	7-9	23 09-6	10-2	58-3	N 40	04 14	04 48	05 17	12 49	14 04	15 15	16 18
	14	29 10-1	23-5	308 13-2	7-7	23 19-8	10-0	58-3	35	04 26	04 58	05 24	12 34	13 45	14 55	15 58
	15	44 10-2	22-7	322 39-9	7-7	23 29-8	9-9	58-3	30	04 36	05 06	05 31	12 21	13 29	14 38	15 42
	16	59 10-4	21-8	337 06-6	7-5	23 39-7	9-7	58-4	20	04 52	05 19	05 41	11 59	13 03	14 09	15 13
	17	74 10-5	21-0	351 33-1	7-4	23 49-4	9-6	58-4	N 10	05 04	05 29	05 51	11 40	12 40	13 44	14 49
THURSDAY	18	89 10-7	N12 20-2	5 59-5	7-2	S 23 59-0	9-5	58-4	0	05 14	05 39	06 00	11 22	12 19	13 21	14 26
	19	104 10-8	19-4	20 25-7	7-1	24 08-5	9-4	58-5	S 10	05 22	05 47	06 08	11 04	11 58	12 58	14 03
	20	119 11-0	18-5	34 51-8	7-1	24 17-9	9-2	58-5	20	05 29	05 55	06 18	10 45	11 36	12 34	13 39
	21	134 11-1	17-7	49 17-9	6-8	24 27-1	9-1	58-5	30	05 35	06 03	06 28	10 24	11 10	12 05	13 10
	22	149 11-3	16-9	63 43-7	6-8	24 36-2	8-9	58-5	35	05 38	06 08	06 34	10 11	10 55	11 49	12 53
	23	164 11-4	16-0	78 09-5	6-6	24 45-1	8-8	58-6	40	05 41	06 13	06 40	09 57	10 37	11 29	12 34
	00	179 11-6	N12 15-2	92 35-1	6-6	S 24 53-9	8-7	58-6	45	05 44	06 18	06 48	09 40	10 16	11 05	12 10
	01	194 11-7	14-4	107 00-7	6-3	25 02-6	8-5	58-6	S 50	05 46	06 24	06 57	09 19	09 50	10 35	11 39
	02	209 11-9	13-6	121 26-0	6-3	25 11-1	8-4	58-7	52	05 47	06 27	07 02	09 10	09 37	10 20	11 24
	03	224 12-0	12-7	135 51-3	6-2	25 19-5	8-2	58-7	54	05 48	06 30	07 06	08 59	09 23	10 03	11 06
	04	239 12-2	11-9	150 16-5	6-0	25 27-7	8-1	58-7	56	05 49	06 33	07 11	08 46	09 06	09 42	10 44
	05	254 12-3	11-1	164 41-5	5-9	25 35-8	7-9	58-7	58	05 50	06 36	07 17	08 32	08 46	09 16	10 16
FRIDAY	06	269 12-5	N12 10-2	179 06-4	5-8	S 25 43-7	7-8	58-8	S 60	05 51	06 40	07 24	08 15	08 20	08 39	09 37
	07	284 12-6	09-4	193 31-2	5-7	25 51-5	7-6	58-8								
	08	299 12-8	08-6	207 55-9	5-5	25 59-1	7-4	58-8	Lat.	Sun-set	Twilight		Moonset			
	09	314 12-9	07-7	222 20-4	5-5	26 06-5	7-3	58-9			Civil	Naut.	20	21	22	23
	10	329 13-1	06-9	236 44-9	5-3	26 13-8	7-2	58-9								
	11	344 13-2	06-1	251 09-2	5-2	26 21-0	6-9	58-9								
	12	359 13-4	N12 05-2	265 33-4	5-1	S 26 27-9	6-9	58-9								
	13	14 13-5	04-4	279 57-5	5-0	26 34-8	6-6	59-0	N 72	21 01	23 45	///	■	■	■	■
	14	29 13-7	03-6	294 21-5	4-8	26 41-4	6-5	59-0	N 70	20 38	22 17	///	■	■	■	■
	15	44 13-9	02-7	308 45-3	4-8	26 47-9	6-3	59-0	68	20 21	21 39	///	■	■	■	■
	16	59 14-0	01-9	323 09-1	4-6	26 54-2	6-1	59-0	66	20 07	21 14	23 48	■	■	■	■
	17	74 14-2	01-1	337 32-7	4-6	27 00-3	6-0	59-1	64	19 55	20 54	22 30	19 07	■	■	■
SATURDAY	18	89 14-3	N12 00-2	351 56-3	4-4	S 27 06-3	5-8	59-1	62	19 45	20 38	21 56	19 46	19 27	■	■
	19	104 14-5	11 59-4	6 19-7	4-4	27 12-1	5-6	59-1	60	19 37	20 25	21 33	20 13	20 21	20 52	22 18
	20	119 14-6	58-6	20 43-1	4-2	27 17-7	5-4	59-2	N 58	19 29	20 14	21 14	20 34	20 53	21 35	22 55
	21	134 14-8	57-7	35 06-3	4-1	27 23-1	5-3	59-2	56	19 23	20 05	20 59	20 52	21 17	22 05	23 22
	22	149 14-9	56-9	49 29-4	4-1	27 28-4	5-1	59-2	54	19 17	19 56	20 46	21 07	21 37	22 27	23 42
	23	164 15-1	56-0	63 52-5	3-9	27 33-5	4-9	59-2	52	19 12	19 49	20 35	21 20	21 53	22 46	24 00
	00	179 15-3	N11 55-2	78 15-4	3-9	S 27 38-4	4-7	59-3	50	19 07	19 42	20 26	21 31	22 08	23 01	24 15
	01	194 15-4	54-4	92 38-3	3-7	27 43-1	4-5	59-3	45	18 57	19 28	20 06	21 55	22 37	23 33	24 45
	02	209 15-6	53-5	107 01-0	3-7	27 47-6	4-4	59-3	N 40	18 49	19 17	19 51	22 14	23 00	23 58	25 08
	03	224 15-7	52-7	121 23-7	3-5	27 52-0	4-2	59-3	35	18 42	19 08	19 39	22 30	23 19	24 18	00 18
	04	239 15-9	51-9	135 46-2	3-5	27 56-2	3-9	59-4	30	18 35	19 00	19 29	22 44	23 35	24 35	00 35
	05	254 16-0	51-0	150 08-7	3-4	28 00-1	3-8	59-4	20	18 24	18 47	19 14	23 08	24 02	00 02	01 04
SUNDAY	06	269 16-2	N11 50-2	164 31-1	3-3	S 28 03-9	3-6	59-4	N 10	18 15	18 37	19 02	23 29	24 26	00 26	01 29
	07	284 16-4	49-3	178 53-4	3-3	28 07-5	3-4	59-4	0	18 06	18 28	18 52	23 49	24 48	00 48	01 52
	08	299 16-5	48-5	193 15-7	3-1	28 10-9	3-2	59-5	S 10	17 58	18 19	18 44	24 08	00 08	01 10	02 15
	09	314 16-7	47-7	207 37-8	3-1	28 14-1	3-0	59-5	20	17 49	18 11	18 37	24 29	00 29	01 34	02 40
	10	329 16-8	46-8	221 59-9	3-0	28 17-1	2-9	59-5	30	17 39	18 03	18 31	24 53	00 53	02 02	03 09
	11	344 17-0	46-0	236 21-9	3-0	28 20-0	2-6	59-5	35	17 33	17 59	18 28	25 08	01 08	02 19	03 26
	12	359 17-1	N11 45-1	250 43-9	2-8	S 28 22-6	2-4	59-6	40	17 26	17 54	18 26	00 11	01 25	02 38	03 45
	13	14 17-3	44-3	265 05-7	2-8	28 25-0	2-2	59-6	45	17 19	17 49	18 23	00 27	01 45	03 01	04 10
	14	29 17-5	43-5	279 27-5	2-8	28 27-2	2-0	59-6	S 50	17 10	17 43	18 21	00 46	02 10	03 31	04 41
	15	44 17-6	42-6	293 49-3	2-7	28 29-2	1-9	59-6	52	17 05	17 40	18 20	00 55	02 22	03 46	04 56
	16	59 17-8	41-8	308 11-0	2-6	28 31-1	1-6	59-7	54	17 01	17 38	18 19	01 06	02 36	04 03	05 14
	17	74 17-9	40-9	322 32-6	2-6	28 32-7	1-4	59-7	56	16 56	17 34	18 18	01 17	02 53	04 24	05 36
MONDAY	18	89 18-1	N11 40-1	336 54-2	2-5	S 28 34-1	1-2	59-7	58	16 50	17 31	18 17	01 31	03 12	04 50	06 03
	19	104 18-3	39-2	351 15-7	2-4	28 35-3	1-0	59-7	S 60	16 44	17 27	18 16	01 47	03 37	05 26	06 43
	20	119 18-4	38-4	5 37-1	2-5	28 36-3	0-8	59-8								
	21	134 18-6	37-6	19 58-6	2-3	28 37-1	0-6	59-8	Day	SUN	Mer. Pass.		Mer. Upper		Pass. Lower	Age
	22	149 18-7	36-7	34 19-9	2-4	28 37-7	0-4	59-8		Eqn. of Time	12h					
	23	164 18-9	35-9	48												

G.M.T.	ARIES		VENUS -3-5		MARS -0-5		JUPITER -1-3		SATURN +0-4		STARS		
	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /
23 00	331 06-6	216 36-9 N 20 48-0	79 00-1 S 25 38-5	144 45-5 S 1 30-2	293 43-0 N 12 03-0	Acamar	315 43-1	S 40 25-1					
01	346 09-1	231 36-3 47-7	94 01-3 38-6	159 47-5 30-4	308 45-4 03-0	Achernar	335 50-6	S 57 23-1					
02	1 11-6	246 35-6 47-3	109 02-5 38-8	174 49-6 30-6	323 47-9 03-0	Acrux	173 47-3	S 62 56-0					
03	16 14-0	261 35-0 .. 47-0	124 03-6 .. 38-9	189 51-6 .. 30-8	338 50-4 .. 03-0	Adhara	255 38-8	S 28 55-4					
04	31 16-5	276 34-3 46-7	139 04-8 39-0	204 53-6 31-0	353 52-8 03-0	Aldebaran	291 27-4	N 16 27-2					
05	46 18-9	291 33-7 46-3	154 05-9 39-1	219 55-6 31-2	8 55-3 03-0								
06	61 21-4	306 33-0 N 20 46-0	169 07-1 S 25 39-2	234 57-7 S 1 31-4	23 57-8 N 12 03-0	Alioth	166 49-7	N 56 07-7					
07	76 23-9	321 32-4 45-6	184 08-3 39-3	249 59-7 31-6	39 00-2 02-9	Alkaid	153 24-9	N 49 28-0					
S 08	91 26-3	336 31-7 45-3	199 09-4 39-4	265 01-7 31-8	54 02-7 02-9	Al Na'ir	28 24-4	S 47 06-5					
A 09	106 28-8	351 31-1 .. 44-9	214 10-6 .. 39-6	280 03-7 .. 32-0	69 05-2 .. 02-9	Alnilam	276 20-0	S 1 12-9					
T 10	121 31-3	6 30-4 44-6	229 11-7 39-7	295 05-8 32-2	84 07-6 02-9	Alphard	218 28-9	S 8 31-4					
U 11	136 33-7	21 29-8 44-2	244 12-9 39-8	310 07-8 32-4	99 10-1 02-9								
R 12	151 36-2	36 29-1 N 20 43-9	259 14-0 S 25 39-9	325 09-8 S 1 32-5	114 12-6 N 12 02-9	Alphecca	126 38-9	N 26 49-1					
D 13	166 38-7	51 28-5 43-5	274 15-2 40-0	340 11-8 32-7	129 15-1 02-9	Alpheratz	358 17-5	N 28 55-4					
A 14	181 41-1	66 27-8 43-2	289 16-3 40-1	355 13-8 32-9	144 17-5 02-8	Altair	62 40-2	N 8 47-2					
Y 15	196 43-6	81 27-2 .. 42-8	304 17-5 .. 40-2	10 15-9 .. 33-1	159 20-0 .. 02-8	Ankaa	353 47-7	S 42 28-0					
16	211 46-1	96 26-5 42-4	319 18-6 40-4	25 17-9 33-3	174 22-5 02-8	Antares	113 06-8	S 26 22-1					
17	226 48-5	111 25-9 42-1	334 19-8 40-5	40 19-9 33-5	189 24-9 02-8								
18	241 51-0	126 25-3 N 20 41-7	349 20-9 S 25 40-6	55 21-9 S 1 33-7	204 27-4 N 12 02-8	Arcturus	146 25-9	N 19 20-5					
19	256 53-4	141 24-6 41-4	4 22-1 40-7	70 24-0 33-9	219 29-9 02-8	Atria	108 38-3	S 68 58-9					
20	271 55-9	156 24-0 41-0	19 23-2 40-8	85 26-0 34-1	234 32-4 02-8	Avior	234 32-3	S 59 24-4					
21	286 58-4	171 23-3 .. 40-6	34 24-4 .. 40-9	100 28-0 .. 34-3	249 34-8 .. 02-8	Bellatrix	279 07-6	N 6 19-6					
22	302 00-8	186 22-7 40-3	49 25-5 41-0	115 30-0 34-5	264 37-3 02-7	Betelgeuse	271 37-2	N 7 24-4					
23	317 03-3	201 22-0 39-9	64 26-7 41-1	130 32-1 34-7	279 39-8 02-7								
24 00	332 05-8	216 21-4 N 20 39-6	79 27-8 S 25 41-3	145 34-1 S 1 34-9	294 42-2 N 12 02-7	Canopus	264 11-2	S 52 40-3					
01	347 08-2	231 20-7 39-2	94 29-0 41-4	160 36-1 35-1	309 44-7 02-7	Capella	281 23-4	N 45 58-1					
02	2 10-7	246 20-1 38-8	109 30-1 41-5	175 38-1 35-3	324 47-2 02-7	Deneb	49 53-7	N 45 10-3					
03	17 13-2	261 19-4 .. 38-5	124 31-2 .. 41-6	190 40-1 .. 35-3	339 49-7 .. 02-7	Denebola	183 07-5	N 14 44-6					
04	32 15-6	276 18-8 38-1	139 32-4 41-7	205 42-2 35-7	354 52-1 02-7	Diphda	349 28-6	S 18 08-9					
05	47 18-1	291 18-1 37-7	154 33-5 41-8	220 44-2 35-9	9 54-6 02-6								
06	62 20-5	306 17-5 N 20 37-4	169 34-7 S 25 41-9	235 46-2 S 1 36-1	24 57-1 N 12 02-6	Dubhe	194 32-3	N 61 55-1					
07	77 23-0	321 16-8 37-0	184 35-8 42-0	250 48-2 36-2	39 59-6 02-6	Elnath	278 54-5	N 28 35-1					
08	92 25-5	336 16-2 36-6	199 36-9 42-2	265 50-2 36-4	55 02-0 02-6	Eltanin	91 01-2	N 51 29-6					
S 09	107 27-9	351 15-5 .. 36-2	214 38-1 .. 42-3	280 52-3 .. 36-6	70 04-5 .. 02-6	Enif	34 19-2	N 9 44-2					
U 10	122 30-4	6 14-9 35-9	229 39-2 42-4	295 54-3 36-8	85 07-0 02-6	Fomalhaut	15 59-8	S 29 46-9					
N 11	137 32-9	21 14-2 35-5	244 40-4 42-5	310 56-3 37-0	100 09-5 02-6								
D 12	152 35-3	36 13-6 N 20 35-1	259 41-5 S 25 42-6	325 58-3 S 1 37-2	115 11-9 N 12 02-5	Gacrux	172 38-6	S 56 56-7					
A 13	167 37-8	51 12-9 34-7	274 42-6 42-7	341 00-3 37-4	130 14-4 02-5	Gienah	176 26-6	S 17 22-4					
14	182 40-3	66 12-3 34-4	289 43-8 42-8	356 02-4 37-6	145 16-9 02-5	Hadar	149 35-5	S 60 13-9					
15	197 42-7	81 11-6 .. 34-0	304 44-9 .. 42-9	11 04-4 .. 37-8	160 19-4 .. 02-5	Hamal	328 38-0	N 23 19-3					
16	212 45-2	96 11-0 33-6	319 46-0 43-1	26 06-4 38-0	175 21-8 02-5	Kaus Aust.	84 27-3	S 34 24-2					
17	227 47-7	111 10-4 33-2	334 47-2 43-2	41 08-4 38-2	190 24-3 02-5								
18	242 50-1	126 09-7 N 20 32-8	349 48-3 S 25 43-3	56 10-5 S 1 38-4	205 26-8 N 12 02-5	Kochab	137 18-3	N 74 17-0					
19	257 52-6	141 09-1 32-4	4 49-4 43-4	71 12-5 38-6	220 29-3 02-4	Makab	14 11-0	N 15 02-6					
20	272 55-0	156 08-4 32-1	19 50-6 43-5	86 14-5 38-8	235 31-7 02-4	Menkar	314 49-5	N 3 58-5					
21	287 57-5	171 07-8 .. 31-7	34 51-7 .. 43-6	101 16-5 .. 39-0	250 34-2 .. 02-4	Menkent	148 46-9	S 36 13-5					
22	303 00-0	186 07-1 31-3	49 52-8 43-7	116 18-5 39-2	265 36-7 02-4	Miaplacidus	221 48-0	S 69 35-3					
23	318 02-4	201 06-5 30-9	64 53-9 43-8	131 20-6 39-4	280 39-2 02-4								
25 00	333 04-9	216 05-8 N 20 30-5	79 55-1 S 25 43-9	146 22-6 S 1 39-6	295 41-6 N 12 02-4	Mirfak	309 27-8	N 49 45-2					
01	348 07-4	231 05-2 30-1	94 56-2 44-0	161 24-6 39-8	310 44-1 02-3	Nunki	76 38-9	S 26 20-3					
02	3 09-8	246 04-5 29-7	109 57-3 44-2	176 26-6 40-0	325 46-6 02-3	Peacock	54 10-4	S 56 50-2					
03	18 12-3	261 03-9 .. 29-3	124 58-4 .. 44-3	191 28-6 .. 40-2	340 49-1 .. 02-3	Pollux	244 08-3	N 28 06-2					
04	33 14-8	276 03-2 29-0	139 59-6 44-4	206 30-6 40-4	355 51-6 02-3	Procyon	245 34-5	N 5 18-5					
05	48 17-2	291 02-6 28-6	155 00-7 44-5	221 32-7 40-6	10 54-0 02-3								
06	63 19-7	306 02-0 N 20 28-2	170 01-8 S 25 44-6	236 34-7 S 1 40-8	25 56-5 N 12 02-3	Rasalhague	96 37-0	N 12 34-9					
07	78 22-2	321 01-3 27-8	185 02-9 44-7	251 36-7 40-9	40 59-0 02-3	Regulus	208 18-9	N 12 07-1					
08	93 24-6	336 00-7 27-4	200 04-1 44-8	266 38-7 41-1	56 01-5 02-2	Rigel	281 43-9	S 8 13-8					
M 09	108 27-1	351 00-0 .. 27-0	215 05-2 .. 44-9	281 40-7 .. 41-3	71 03-9 .. 02-2	Rigel Kent.	140 37-3	S 60 42-9					
O 10	123 29-5	5 59-4 26-6	230 06-3 45-0	296 42-8 41-5	86 06-4 02-2	Sabik	102 50-3	S 15 41-4					
N 11	138 32-0	20 58-7 26-2	245 07-4 45-1	311 44-8 41-7	101 08-9 02-2								
D 12	153 34-5	35 58-1 N 20 25-8	260 08-5 S 25 45-2	326 46-8 S 1 41-9	116 11-4 N 12 02-2	Schedar	350 18-2	N 56 22-2					
A 13	168 36-9	50 57-4 25-4	275 09-6 45-4	341 48-8 42-1	131 13-9 02-2	Shaula	97 06-6	S 37 05-2					
14	183 39-4	65 56-8 25-0	290 10-8 45-5	356 50-8 42-3	146 16-3 02-1	Sirius	259 03-1	S 16 40-1					
15	198 41-9	80 56-1 .. 24-6	305 11-9 .. 45-6	11 52-9 .. 42-5	161 18-8 .. 02-1	Spica	159 06-3	S 11 00-2					
16	213 44-3	95 55-5 24-2	320 13-0 45-7	26 54-9 42-7	176 21-3 02-1	Suhail	223 17-3	S 43 18-3					
17	228 46-8	110 54-9 23-8	335 14-1 45-8	41 56-9 42-9	191 23-8 02-1								
18	243 49-3	125 54-2 N 20 23-4	350 15-2 S 25 45-9	56 58-9 S 1 43-1	206 26-3 N 12 02-1	Vega	81 01-1	N 38 45-4					
19	258 51-7	140 53-6 22-9	5 16-3 46-0	72 00-9 43-3	221 28-7 02-1	Zuben'ubi	137 42-1	S 15 55-1					
20	273 54-2	155 52-9 22-5	20 17-4 46-1	87 02-9 43-5	236 31-2 02-1								
21	288 56-7	170 52-3 .. 22-1	35 18-6 .. 46-2	102 05-0 .. 43-7	251 33-7 .. 02-0								
22	303 59-1	185 51-6 21-7	50 19-7 46-3	117 07-0 43-9	266 36-2 02-0	Venus	244 15-6	h m 9 35					
23	319 01-6	200 51-0 21-3	65 20-8 46-4	132 09-0 44-1	281 38-7 02-0	Mars	107 22-0	18 41					
Mer. Pass.	h m 1 51-3	v -0-6 d 0-4	v 1-1 d 0-1	v 2-0 d 0-2	v 2-5 d 0-0	Jupiter	173 28-3	14 16					
						Saturn	322 36-4	4 20					

G.M.T.		SUN		MOON						Lat.	Twilight		Sun-rise	Moonrise						
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.	Naut.		Civil	23		24	25	26				
d	h	°	'	°	'	°	'	'	°	'	h	m	h	m	h	m	h	m		
23	00	179	19.1	N 11	35.0	63	02.6	2.2	S 28	38.3	0.0	59.9	N 72	///	01 10	03 18	■	■	■	21 22
	01	194	19.2		34.2	77	23.8	2.3	28	38.3	0.2	59.9	N 70	///	02 07	03 39	■	■	■	20 50
	02	209	19.4		33.3	91	45.1	2.2	28	38.1	0.5	59.9	68	///	02 39	03 55	■	■	■	20 26
	03	224	19.5	..	32.5	106	06.3	2.2	28	37.6	0.6	59.9	66	01 01	03 03	04 08	■	■	■	20 07
	04	239	19.7		31.6	120	27.5	2.1	28	37.0	0.9	59.9	64	01 50	03 20	04 18	■	20 50	20 09	19 52
SATURDAY	05	254	19.9		30.8	134	48.6	2.1	28	36.1	1.0	60.0	62	02 20	03 35	04 27	■	19 57	19 46	19 39
	06	269	20.0	N 11	30.0	149	09.7	2.2	S 28	35.1	1.3	60.0	60	02 42	03 47	04 35	19 10	19 24	19 28	19 28
	07	284	20.2		29.1	163	30.9	2.1	28	33.8	1.5	60.0	N 58	02 59	03 58	04 42	18 33	19 00	19 12	19 19
	08	299	20.4		28.3	177	52.0	2.1	28	32.3	1.7	60.0	56	03 13	04 07	04 48	18 06	18 40	18 59	19 10
	09	314	20.5	..	27.4	192	13.1	2.1	28	30.6	1.9	60.1	54	03 25	04 15	04 53	17 45	18 23	18 47	19 03
	10	329	20.7		26.6	206	34.2	2.0	28	28.7	2.1	60.1	52	03 36	04 22	04 58	17 27	18 09	18 37	18 56
	11	344	20.9		25.7	220	55.2	2.1	28	26.6	2.3	60.1	50	03 45	04 28	05 03	17 12	17 57	18 28	18 50
	12	359	21.0	N 11	24.9	235	16.3	2.1	S 28	24.3	2.6	60.1	45	04 03	04 41	05 12	16 42	17 31	18 08	18 36
	13	14	21.2		24.0	249	37.4	2.1	28	21.7	2.7	60.1	N 40	04 17	04 51	05 20	16 18	17 10	17 52	18 25
	14	29	21.3		23.2	263	58.5	2.1	28	19.0	3.0	60.2	35	04 29	05 00	05 26	15 58	16 53	17 38	18 16
	15	44	21.5	..	22.3	278	19.6	2.1	28	16.0	3.1	60.2	30	04 38	05 08	05 32	15 42	16 38	17 26	18 07
	16	59	21.7		21.5	292	40.7	2.1	28	12.9	3.4	60.2	20	04 53	05 20	05 42	15 13	16 13	17 06	17 53
	17	74	21.8		20.6	307	01.8	2.2	28	09.5	3.6	60.2	N 10	05 05	05 30	05 51	14 49	15 51	16 48	17 40
	18	89	22.0	N 11	19.8	321	23.0	2.1	S 28	05.9	3.8	60.2	0	05 14	05 38	05 59	14 26	15 30	16 31	17 28
	19	104	22.2		18.9	335	44.1	2.2	28	02.1	4.0	60.2	S 10	05 21	05 46	06 07	14 03	15 10	16 15	17 16
	20	119	22.3		18.1	350	05.3	2.2	27	58.1	4.2	60.3	20	05 27	05 53	06 15	13 39	14 48	15 57	17 03
	21	134	22.5	..	17.2	4	26.5	2.3	27	53.9	4.4	60.3	30	05 32	06 00	06 25	13 10	14 22	15 36	16 48
	22	149	22.7		16.4	18	47.8	2.2	27	49.5	4.7	60.3	35	05 35	06 04	06 30	12 53	14 06	15 23	16 40
23	164	22.8		15.5	33	09.0	2.3	27	44.8	4.8	60.3	40	05 37	06 08	06 36	12 34	13 49	15 09	16 30	
												45	05 39	06 13	06 43	12 10	13 27	14 52	16 18	
24	00	179	23.0	N 11	14.7	47	30.3	2.4	S 27	40.0	5.0	60.3	S 50	05 41	06 18	06 51	11 39	13 00	14 31	16 04
	01	194	23.2		13.8	61	51.7	2.3	27	35.0	5.3	60.3	52	05 42	06 21	06 55	11 24	12 47	14 21	15 57
	02	209	23.3		13.0	76	13.0	2.5	27	29.7	5.4	60.4	54	05 42	06 23	06 59	11 06	12 32	14 10	15 49
	03	224	23.5	..	12.1	90	34.5	2.4	27	24.3	5.7	60.4	56	05 43	06 26	07 04	10 44	12 14	13 57	15 41
	04	239	23.7		11.3	104	55.9	2.6	27	18.6	5.8	60.4	58	05 43	06 29	07 09	10 16	11 52	13 42	15 32
SUNDAY	05	254	23.8		10.4	119	17.5	2.5	27	12.8	6.1	60.4	S 60	05 44	06 32	07 15	09 37	11 23	13 24	15 21
	06	269	24.0	N 11	09.5	133	39.0	2.6	S 27	06.7	6.2	60.4								
	07	284	24.2		08.7	148	00.6	2.7	27	00.5	6.5	60.4								
	08	299	24.3		07.8	162	22.3	2.8	26	54.0	6.6	60.4								
	09	314	24.5	..	07.0	176	44.1	2.8	26	47.4	6.9	60.5								
	10	329	24.7		06.1	191	05.9	2.8	26	40.5	7.0	60.5								
	11	344	24.8		05.3	205	27.7	2.9	26	33.5	7.2	60.5								
	12	359	25.0	N 11	04.4	219	49.6	3.0	S 26	26.3	7.5	60.5								
	13	14	25.2		03.6	234	11.6	3.1	26	18.8	7.6	60.5								
	14	29	25.3		02.7	248	33.7	3.1	26	11.2	7.8	60.5								
	15	44	25.5	..	01.9	262	55.8	3.2	26	03.4	8.0	60.5								
	16	59	25.7		01.0	277	18.0	3.3	25	55.4	8.2	60.5								
	17	74	25.8	11	00.1	291	40.3	3.4	25	47.2	8.4	60.6								
	18	89	26.0	N 10	59.3	306	02.7	3.4	S 25	38.8	8.6	60.6								
	19	104	26.2		58.4	320	25.1	3.5	25	30.2	8.7	60.6	N 58	19 21	20 05	21 03	22 55	24 42	00 42	02 34
	20	119	26.3		57.6	334	47.6	3.6	25	21.5	8.9	60.6	56	19 15	19 57	20 49	23 22	25 01	01 01	02 46
	21	134	26.5	..	56.7	349	10.2	3.7	25	12.6	9.2	60.6	54	19 10	19 49	20 38	23 42	25 17	01 17	02 57
	22	149	26.7		55.8	3	32.9	3.8	25	03.4	9.3	60.6	52	19 05	19 42	20 27	24 00	00 00	01 30	03 07
23	164	26.8		55.0	17	55.7	3.9	24	54.1	9.4	60.6	50	19 01	19 36	20 19	24 15	00 15	01 42	03 15	
												45	18 52	19 23	20 01	24 45	00 45	02 07	03 33	
25	00	179	27.0	N 10	54.1	32	18.6	3.9	S 24	44.7	9.7	60.6	N 40	18 44	19 13	19 46	25 08	01 08	02 26	03 48
	01	194	27.2		53.3	46	41.5	4.1	24	35.0	9.8	60.6	35	18 38	19 04	19 35	00 18	01 27	02 43	04 00
	02	209	27.4		52.4	61	04.6	4.1	24	25.2	10.0	60.6	30	18 32	18 57	19 26	00 35	01 43	02 57	04 11
	03	224	27.5	..	51.6	75	27.7	4.3	24	15.2	10.1	60.6	20	18 22	18 45	19 11	01 04	02 11	03 21	04 29
	04	239	27.7		50.7	89	51.0	4.3	24	05.1	10.4	60.6	N 10	18 14	18 35	19 00	01 29	02 35	03 41	04 44
MONDAY	05	254	27.9		49.8	104	14.3	4.4	23	54.7	10.5	60.6	0	18 06	18 27	18 51	01 52	02 57	04 00	04 59
	06	269	28.0	N 10	49.0	118	37.7	4.5	S 23	44.2	10.6	60.6								
	07	284	28.2		48.1	133	01.2	4.7	23	33.6	10.9	60.7	S 10	17 58	18 19	18 44	02 15	03 19	04 19	05 13
	08	299	28.4		47.2	147	24.9	4.7	23	22.7	11.0	60.7	20	17 50	18 12	18 38	02 40	03 42	04 39	05 29
	09	314	28.6	..	46.4	161	48.6	4.8	23	11.7	11.1	60.7	30	17 40	18 05	18 33	03 09	04 09	05 02	05 46
	10	329	28.7		45.5	176	12.4	4.9	23	00.6	11.3	60.7	35	17 35	18 01	18 30	03 26	04 25	05 15	05 56
	11	344	28.9		44.7	190	36.3	5.1	22	49.3	11.5	60.7	40	17 29	17 57	18 28	03 45	04 43	05 30	06 07
	12	359	29.1	N 10	43.8	205	00.4	5.1	S 22	37.8	11.6	60.7	45	17 22	17 52	18 26	04 10	05 06	05 48	06 21
	13	14	29.2		42.9	219	24.5	5.2	22	26.2	11.8	60.7	S 50	17 14	17 47	18 25	04 41	05 34	06 11	06 37
	14	29	29.4		42.1	233	48.7	5.4	22	14.4	11.9	60.7	52	17 10	17 45	18 24	04 56	05 47	06 21	06 44
	15	44	29.6	..	41.2	248	13.1	5.4	22	02.5	12.0	60.7	54	17 06	17 42	18 24	05 14	06 03	06 33	06 53
	16	59	29.8		40.3	262	37.5													

		ARIES		VENUS -3.5		MARS -0.4		JUPITER -1.3		SATURN +0.4		STARS			
G.M.T.		G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d	h														
TUESDAY	26 00	334 04.0	215 50.3	N 20 20.9	80 21.9	S 25 46.5	147 11.0	S 1 44.3	296 41.1	N 12 02.0	Acamar	315 43.1	S 40 25.1		
	01	349 06.5	230 49.7	20.5	95 23.0	46.6	162 13.0	44.5	311 43.6	02.0	Achernar	335 50.6	S 57 23.1		
	02	4 09.0	245 49.1	20.1	110 24.1	46.7	177 15.0	44.7	326 46.1	02.0	Acrux	173 47.3	S 62 56.0		
	03	19 11.4	260 48.4	19.7	125 25.2	46.8	192 17.1	44.9	341 48.6	01.9	Adhara	255 38.7	S 28 55.4		
	04	34 13.9	275 47.8	19.2	140 26.3	47.0	207 19.1	45.1	356 51.1	01.9	Aldebaran	291 27.4	N 16 27.2		
	05	49 16.4	290 47.1	18.8	155 27.4	47.1	222 21.1	45.3	11 53.5	01.9					
	06	64 18.8	305 46.5	N 20 18.4	170 28.5	S 25 47.2	237 23.1	S 1 45.5	26 56.0	N 12 01.9	Alioth	166 49.7	N 56 07.6		
	07	79 21.3	320 45.8	18.0	185 29.6	47.3	252 25.1	45.7	41 58.5	01.9	Alkaid	153 24.9	N 49 28.0		
	08	94 23.8	335 45.2	17.6	200 30.7	47.4	267 27.1	45.9	57 01.0	01.9	Al Na'ir	28 24.4	S 47 06.5		
	09	109 26.2	350 44.6	17.1	215 31.8	47.5	282 29.2	46.1	72 03.5	01.8	Alnilam	276 20.0	S 1 12.9		
	10	124 28.7	5 43.9	16.7	230 32.9	47.6	297 31.2	46.3	87 06.0	01.8	Alphard	218 28.8	S 8 31.4		
	11	139 31.2	20 43.3	16.3	245 34.0	47.7	312 33.2	46.5	102 08.4	01.8					
	12	154 33.6	35 42.6	N 20 15.9	260 35.1	S 25 47.8	327 35.2	S 1 46.6	117 10.9	N 12 01.8	Alphecca	126 39.0	N 26 49.1		
	13	169 36.1	50 42.0	15.4	275 36.2	47.9	342 37.2	46.8	132 13.4	01.8	Alpheratz	358 17.5	N 28 55.4		
	14	184 38.5	65 41.3	15.0	290 37.3	48.0	357 39.2	47.0	147 15.9	01.8	Altair	62 40.2	N 8 47.2		
	15	199 41.0	80 40.7	14.6	305 38.4	48.1	12 41.3	47.2	162 18.4	01.7	Ankaa	353 47.6	S 42 28.0		
	16	214 43.5	95 40.1	14.2	320 39.5	48.2	27 43.3	47.4	177 20.9	01.7	Antares	113 06.8	S 26 22.1		
	17	229 45.9	110 39.4	13.7	335 40.6	48.3	42 45.3	47.6	192 23.3	01.7					
	18	244 48.4	125 38.8	N 20 13.3	350 41.7	S 25 48.4	57 47.3	S 1 47.8	207 25.8	N 12 01.7	Arcturus	146 25.9	N 19 20.5		
	19	259 50.9	140 38.1	12.9	5 42.8	48.5	72 49.3	48.0	222 28.3	01.7	Atria	108 38.3	S 68 58.9		
	20	274 53.3	155 37.5	12.4	20 43.9	48.6	87 51.3	48.2	237 30.8	01.7	Avior	234 32.3	S 59 24.4		
	21	289 55.8	170 36.8	12.0	35 45.0	48.7	102 53.4	48.4	252 33.3	01.6	Bellatrix	279 07.5	N 6 19.6		
	22	304 58.3	185 36.2	11.6	50 46.1	48.8	117 55.4	48.6	267 35.8	01.6	Betelgeuse	271 37.2	N 7 24.4		
	23	320 00.7	200 35.6	11.1	65 47.2	48.9	132 57.4	48.8	282 38.3	01.6					
WEDNESDAY	27 00	335 03.2	215 34.9	N 20 10.7	80 48.3	S 25 49.0	147 59.4	S 1 49.0	297 40.7	N 12 01.6	Canopus	264 11.1	S 52 40.3		
	01	350 05.7	230 34.3	10.3	95 49.4	49.1	163 01.4	49.2	312 43.2	01.6	Capella	281 23.4	N 45 58.1		
	02	5 08.1	245 33.6	09.8	110 50.5	49.3	178 03.4	49.4	327 45.7	01.6	Deneb	49 53.7	N 45 10.3		
	03	20 10.6	260 33.0	09.4	125 51.5	49.4	193 05.4	49.6	342 48.2	01.5	Denebola	183 07.5	N 14 44.6		
	04	35 13.0	275 32.4	09.0	140 52.6	49.5	208 07.5	49.8	357 50.7	01.5	Diphda	349 28.6	S 18 08.9		
	05	50 15.5	290 31.7	08.5	155 53.7	49.6	223 09.5	50.0	12 53.2	01.5					
	06	65 18.0	305 31.1	N 20 08.1	170 54.8	S 25 49.7	238 11.5	S 1 50.2	27 55.7	N 12 01.5	Dubhe	194 32.3	N 61 55.0		
	07	80 20.4	320 30.4	07.6	185 55.9	49.8	253 13.5	50.4	42 58.1	01.5	Elnath	278 54.5	N 28 35.1		
	08	95 22.9	335 29.8	07.2	200 57.0	49.9	268 15.5	50.6	58 00.6	01.4	Eltanin	91 01.2	N 51 29.7		
	09	110 25.4	350 29.2	06.7	215 58.1	50.0	283 17.5	50.8	73 03.1	01.4	Enif	34 19.2	N 9 44.2		
	10	125 27.8	5 28.5	06.3	230 59.2	50.1	298 19.5	51.0	88 05.6	01.4	Fomalhaut	15 59.8	S 29 46.9		
	11	140 30.3	20 27.9	05.9	246 00.2	50.2	313 21.6	51.2	103 08.1	01.4					
	12	155 32.8	35 27.2	N 20 05.4	261 01.3	S 25 50.3	328 23.6	S 1 51.4	118 10.6	N 12 01.4	Gacrux	172 38.6	S 56 56.7		
	13	170 35.2	50 26.6	05.0	276 02.4	50.4	343 25.6	51.6	133 13.1	01.4	Gienah	176 26.6	S 17 22.4		
	14	185 37.7	65 26.0	04.5	291 03.5	50.5	358 27.6	51.8	148 15.5	01.3	Hadar	149 35.5	S 60 13.9		
	15	200 40.2	80 25.3	04.1	306 04.6	50.6	13 29.6	52.0	163 18.0	01.3	Hamal	328 37.9	N 23 19.3		
	16	215 42.6	95 24.7	03.6	321 05.6	50.7	28 31.6	52.2	178 20.5	01.3	Kaus Aust.	84 27.3	S 34 24.2		
	17	230 45.1	110 24.0	03.2	336 06.7	50.8	43 33.6	52.4	193 23.0	01.3					
	18	245 47.5	125 23.4	N 20 02.7	351 07.8	S 25 50.9	58 35.7	S 1 52.6	208 25.5	N 12 01.3	Kochab	137 18.4	N 74 17.0		
	19	260 50.0	140 22.8	02.2	6 08.9	51.0	73 37.7	52.8	223 28.0	01.2	Markab	14 11.0	N 15 02.6		
	20	275 52.5	155 22.1	01.8	21 10.0	51.1	88 39.7	53.0	238 30.5	01.2	Menkar	314 49.5	N 3 58.5		
	21	290 54.9	170 21.5	01.3	36 11.0	51.2	103 41.7	53.2	253 33.0	01.2	Menkent	148 46.9	S 36 13.5		
	22	305 57.4	185 20.9	00.9	51 12.1	51.3	118 43.7	53.4	268 35.5	01.2	Miaplacidus	221 48.0	S 69 35.3		
	23	320 59.9	200 20.2	00.4	66 13.2	51.4	133 45.7	53.6	283 37.9	01.2					
THURSDAY	28 00	336 02.3	215 19.6	N 20 00.0	81 14.3	S 25 51.5	148 47.7	S 1 53.7	298 40.4	N 12 01.1	Mirfak	309 27.8	N 49 45.2		
	01	351 04.8	230 18.9	19 59.5	96 15.3	51.6	163 49.8	53.9	313 42.9	01.1	Nunki	76 38.9	S 26 20.3		
	02	6 07.3	245 18.3	59.0	111 16.4	51.7	178 51.8	54.1	328 45.4	01.1	Peacock	54 10.4	S 56 50.2		
	03	21 09.7	260 17.7	58.6	126 17.5	51.8	193 53.8	54.3	343 47.9	01.1	Pollux	244 08.3	N 28 06.2		
	04	36 12.2	275 17.0	58.1	141 18.6	51.9	208 55.8	54.5	358 50.4	01.1	Procyon	245 34.5	N 5 18.5		
	05	51 14.6	290 16.4	57.6	156 19.6	52.0	223 57.8	54.7	13 52.9	01.1					
	06	66 17.1	305 15.8	N 19 57.2	171 20.7	S 25 52.1	238 59.8	S 1 54.9	28 55.4	N 12 01.0	Rasalhague	96 37.0	N 12 34.9		
	07	81 19.6	320 15.1	56.7	186 21.8	52.2	254 01.8	55.1	43 57.9	01.0	Regulus	208 18.9	N 12 07.1		
	08	96 22.0	335 14.5	56.2	201 22.8	52.3	269 03.8	55.3	59 00.4	01.0	Rigel	281 43.9	S 8 13.8		
	09	111 24.5	350 13.8	55.8	216 23.9	52.4	284 05.9	55.5	74 02.8	01.0	Rigel Kent.	140 37.4	S 60 42.8		
	10	126 27.0	5 13.2	55.3	231 25.0	52.5	299 07.9	55.7	89 05.3	01.0	Sabik	102 50.3	S 15 41.4		
	11	141 29.4	20 12.6	54.8	246 26.0	52.6	314 09.9	55.9	104 07.8	00.9					
	12	156 31.9	35 11.9	N 19 54.4	261 27.1	S 25 52.7	329 11.9	S 1 56.1	119 10.3	N 12 00.9	Schedar	350 18.1	N 56 22.2		
	13	171 34.4	50 11.3	53.9	276 28.2	52.8	344 13.9	56.3	134 12.8	00.9	Shaula	97 06.7	S 37 05.2		
	14	186 36.8	65 10.7	53.4	291 29.2	52.9	359 15.9	56.5	149 15.3	00.9	Sirius	259 03.1	S 16 40.1		
	15	201 39.3	80 10.0	53.0	306 30.3	52.9	14 17.9	56.7	164 17.8	00.9	Spica	159 06.3	S 11 00.2		
	16	216 41.8	95 09.4	52.5	321 31.4	53.0	29 19.9	56.9	179 20.3	00.8	Suhail	223 17.3	S 43 18.3		
	17	231 44.2	110 08.8	52.0	336 32.4	53.1	44 21.9	57.1	194 22.8	00.8					
	18	246 46.7	125 08.1	N 19 51.5	351 33.5	S 25 53.2	59 24.0	S 1 57.3	209 25.3	N 12 00.8	Vega	81 01.1	N 38 45.4		
	19	261 49.1	140 07.5	51.0	6 34.6	53.3	74 26.0	57.5	224 27.8	00.8	Zuben'ubi	137 42.2	S 15 55.1		
	20	276 51.6	155 06.8	50.6	21 35.6	53.4	89 28.0	57.7	239 30.3	00.8					
	21	291 54.1	170 06.2	50.1	36 36.7	53.5	104 30.0	57.9	254 32.8	00.7					
	22	306 56.5	185 05.6	49.6	51 37.7	53.6	119 32.0	58.1	269 35.2	00.7	Venus	240 31.7	Mer. Pass. 9 38		
	23	321 59.0	200 04.9	49.1	66 38.8	53.7	134 34.0	58.3	284 37.7	00.7	Mars	105 45.1	18 35		
											Jupiter	172 56.2	14 06		
											Saturn	322 37.5	4 09		
Mer. Pass.		h m													
		1 39.5	v -0.6	d 0.4	v 1.1	d 0.1	v 2.0	d 0.2	v 2.5	d 0.0					

G.M.T.	SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise				
	G.H.A.	Dec.	G.H.A.	v	Dec.	d		H.P.	Naut.		Civil	26	27	28	29
d h								h m	h m	h m	h m	h m	h m	h m	h m
TUESDAY	26 00	179 31.2 N 10 33.4	17 56.9 6.4	S 20 08.9 13.3	60.6	N 72	01 47	03 34	21 22	20 20	19 39	19 02			
	01	194 31.3 32.6	32 22.3 6.6	19 55.6 13.4	60.6	N 70	02 28	03 52	20 50	20 07	19 36	19 07			
	02	209 31.5 31.7	46 47.9 6.6	19 42.2 13.6	60.6	68	02 55	04 06	20 26	19 56	19 33	19 12			
	03	224 31.7 30.8	61 13.5 6.7	19 28.6 13.7	60.6	66	03 15	04 18	20 07	19 47	19 31	19 16			
	04	239 31.9 30.0	75 39.2 6.9	19 14.9 13.8	60.6	64	03 31	04 27	19 52	19 40	19 29	19 19			
	05	254 32.0 29.1	90 05.1 6.9	19 01.1 13.9	60.6	62	03 44	04 35	19 39	19 33	19 28	19 22			
	06	269 32.2 N 10 28.2	104 31.0 7.1	S 18 47.2 14.0	60.6	60	03 55	04 42	19 28	19 27	19 26	19 25			
	07	284 32.4 27.3	118 57.1 7.1	18 33.2 14.1	60.6	N 58	04 05	04 48	19 19	19 22	19 25	19 27			
	08	299 32.6 26.5	133 23.2 7.3	18 19.1 14.3	60.6	56	04 21	04 54	19 10	19 18	19 24	19 27			
	09	314 32.7 25.6	147 49.5 7.4	18 04.8 14.3	60.6	54	04 32	04 20	04 59	19 03	19 14	19 23			
	10	329 32.9 24.7	162 15.9 7.5	17 50.5 14.5	60.6	52	04 42	04 27	05 03	18 56	19 10	19 22			
	11	344 33.1 23.9	176 42.4 7.6	17 36.0 14.6	60.6	50	04 50	04 33	05 07	18 50	19 07	19 21			
	12	359 33.3 N 10 23.0	191 09.0 7.7	S 17 21.4 14.6	60.6	45	04 07	04 45	05 15	18 36	18 59	19 19			
	13	14 33.4 22.1	205 35.7 7.8	17 06.8 14.8	60.6	N 40	04 21	04 54	05 23	18 25	18 53	19 18			
	14	29 33.6 21.3	220 02.5 7.9	16 52.0 14.9	60.5	35	04 32	05 03	05 29	18 16	18 48	19 16			
	15	44 33.8 20.4	234 29.4 8.0	16 37.1 14.9	60.5	30	04 40	05 09	05 34	18 07	18 43	19 15			
	16	59 34.0 19.5	248 56.4 8.1	16 22.2 15.1	60.5	20	04 54	05 21	05 43	17 53	18 35	19 13			
	17	74 34.2 18.6	263 23.5 8.2	16 07.1 15.1	60.5	N 10	05 05	05 30	05 51	17 40	18 27	19 11			
	18	89 34.3 N 10 17.8	277 50.7 8.3	S 15 52.0 15.3	60.5	0	05 13	05 37	05 58	17 28	18 21	19 10			
	19	104 34.5 16.9	292 18.0 8.5	15 36.7 15.3	60.5	S 10	05 19	05 44	06 05	17 16	18 14	19 08			
	20	119 34.7 16.0	306 45.5 8.5	15 21.4 15.4	60.5	20	05 25	05 51	06 13	17 03	18 06	19 06			
	21	134 34.9 15.2	321 13.0 8.6	15 06.0 15.5	60.5	30	05 29	05 57	06 21	16 48	17 58	19 04			
	22	149 35.0 14.3	335 40.6 8.7	14 50.5 15.6	60.5	35	05 31	06 01	06 26	16 40	17 53	19 03			
	23	164 35.2 13.4	350 08.3 8.8	14 34.9 15.6	60.4	40	05 33	06 04	06 32	16 30	17 47	19 02			
	24					45	05 34	06 08	06 38	16 18	17 41	19 00			
WEDNESDAY	27 00	179 35.4 N 10 12.5	4 36.1 9.0	S 14 19.3 15.7	60.4	S 50	05 35	06 12	16 04	16 04	17 33	18 58			
	01	194 35.6 11.7	19 04.1 9.0	14 03.6 15.8	60.4	52	05 35	06 14	15 57	17 29	18 57	20 20			
	02	209 35.8 10.8	33 32.1 9.1	13 47.8 15.9	60.4	54	05 36	06 17	15 49	17 25	18 56	20 24			
	03	224 35.9 09.9	48 00.2 9.2	13 31.9 15.9	60.4	56	05 36	06 19	15 41	17 21	18 55	20 27			
	04	239 36.1 09.0	62 28.4 9.3	13 16.0 16.1	60.4	58	05 36	06 21	15 32	17 16	18 54	20 29			
	05	254 36.3 08.2	76 56.7 9.4	12 59.9 16.0	60.3	S 60	05 36	06 24	15 21	17 10	18 53	20 32			
	06	269 36.5 N 10 07.3	91 25.1 9.4	S 12 43.9 16.2	60.3										
	07	284 36.7 06.4	105 53.5 9.6	12 27.7 16.2	60.3	Lat.	Sun-set	Twilight		Moonset					
	08	299 36.8 05.5	120 22.1 9.7	12 11.5 16.2	60.3			Civil	Naut.	26	27	28	29		
	09	314 37.0 04.7	134 50.8 9.7	11 55.3 16.3	60.3										
	10	329 37.2 03.8	149 19.5 9.9	11 39.0 16.4	60.3										
	11	344 37.4 02.9	163 48.4 9.9	11 22.6 16.4	60.2										
	12	359 37.6 N 10 02.0	178 17.3 10.0	S 11 06.2 16.5	60.2	N 72	20 25	22 08	02 30	05 21	07 47				
	13	14 37.7 01.2	192 46.3 10.1	10 49.7 16.5	60.2	N 70	20 08	21 30	03 00	05 31	07 45				
	14	29 37.9 10 00.3	207 15.4 10.2	10 33.2 16.6	60.2	68	19 54	21 04	03 21	05 39	07 44				
	15	44 38.1 9 59.4	221 44.6 10.2	10 16.6 16.6	60.2	66	19 43	20 45	01 10	03 38	05 45				
	16	59 38.3 58.5	236 13.8 10.4	10 00.0 16.6	60.1	64	19 34	20 29	01 40	03 52	05 51				
	17	74 38.5 57.7	250 43.2 10.4	9 43.4 16.7	60.1	62	19 26	20 16	02 02	04 03	05 55				
	18	89 38.6 N 9 56.8	265 12.6 10.5	S 9 26.7 16.8	60.1	60	19 19	20 06	02 19	04 13	05 59				
	19	104 38.8 55.9	279 42.1 10.6	9 09.9 16.7	60.1	N 58	19 13	19 56	02 34	04 22	06 03				
	20	119 39.0 55.0	294 11.7 10.6	8 53.2 16.9	60.0	56	19 08	19 48	02 46	04 29	06 06				
	21	134 39.2 54.1	308 41.3 10.7	8 36.3 16.8	60.0	54	19 03	19 41	02 57	04 35	06 09				
	22	149 39.4 53.3	323 11.0 10.8	8 19.5 16.9	60.0	52	18 59	19 35	03 07	04 41	06 12				
	23	164 39.5 52.4	337 40.8 10.9	8 02.6 16.9	60.0	50	18 55	19 29	03 15	04 46	06 14				
	24					45	18 47	19 17	03 33	04 58	06 19				
THURSDAY	28 00	179 39.7 N 9 51.5	352 10.7 10.9	S 7 45.7 16.9	59.9	N 40	18 40	19 08	03 48	05 07	06 23	07 36			
	01	194 39.9 50.6	6 40.6 11.1	7 28.8 16.9	59.9	35	18 34	19 00	04 00	05 15	06 27	07 35			
	02	209 40.1 49.7	21 10.7 11.0	7 11.9 17.0	59.9	30	18 29	18 53	04 11	05 22	06 30	07 35			
	03	224 40.3 48.9	35 40.7 11.2	6 54.9 17.0	59.9	20	18 20	18 42	04 29	05 34	06 35	07 34			
	04	239 40.5 48.0	50 10.9 11.2	6 37.9 17.0	59.8	N 10	18 12	18 33	04 44	05 44	06 40	07 33			
	05	254 40.6 47.1	64 41.1 11.3	6 20.9 17.0	59.8	0	18 05	18 26	04 59	05 53	06 44	07 32			
	06	269 40.8 N 9 46.2	79 11.4 11.3	S 6 03.9 17.1	59.8	S 10	17 58	18 19	05 13	06 03	06 48	07 31			
	07	284 41.0 45.3	93 41.7 11.4	5 46.8 17.1	59.8	20	17 50	18 13	05 29	06 13	06 53	07 30			
	08	299 41.2 44.5	108 12.1 11.5	5 29.7 17.0	59.7	30	17 42	18 06	05 46	06 24	06 58	07 29			
	09	314 41.4 43.6	122 42.6 11.5	5 12.7 17.1	59.7	35	17 37	18 03	05 56	06 31	07 01	07 28			
	10	329 41.6 42.7	137 13.1 11.6	4 55.6 17.1	59.7	40	17 32	17 59	06 07	06 38	07 04	07 28			
	11	344 41.8 41.8	151 43.7 11.7	4 38.5 17.1	59.6	45	17 26	17 56	06 21	06 46	07 08	07 27			
	12	359 41.9 N 9 40.9	166 14.4 11.7	S 4 21.4 17.1	59.6	S 50	17 19	17 51	06 37	06 56	07 12	07 26			
	13	14 42.1 40.0	180 45.1 11.7	4 04.3 17.1	59.6	52	17 15	17 49	06 44	07 01	07 14	07 25			
	14	29 42.3 39.2	195 15.8 11.8	3 47.2 17.1	59.6	54	17 11	17 47	06 53	07 06	07 16	07 25			
	15	44 42.5 38.3	209 46.6 11.9	3 30.1 17.2	59.5	56	17 07	17 45	07 02	07 12	07 19	07 24			
	16	59 42.7 37.4	224 17.5 11.9	3 12.9 17.1	59.5	58	17 03	17 43	07 13	07 18	07 21	07 24			
	17	74 42.9 36.5	238 48.4 12.0	2 55.8 17.1	59.5	S 60	16 58	17 40	07 25	07 25	07 24	07 23			
	18	89 43.0 N 9 35.6	253 19.4 12.0	S 2 38.7 17.1	59.4										
	19	104 43.2 34.7	267 50.4 12.1	2 21.6 17.1	59.4										
	20	119 43.4 33.9	282 21.5 12.1	2 04.5 17.1	59.4	Day	Eqn. of Time	Mer. Pass.	Mer. Upper	Pass. Lower	Age	Phase			
	21	134 43.6 33.0	296 52.6 12.1	1 47.4 17.0	59.3		00 ^h	12 ^h							
	22	149 43.8 32.1	311 23.7 12.2	1 30.4 17.1	59.3		m s	h m							
	23	164 44.0 31.2	325 54.9 12.2	1 13.3 17.0	59.3	26	01 56	01 47	23 41	11 14	13				
	24					27	01 39	01 30	24 32	12 07	14				
25					28	01 21	01 13	00 32	12 57	15					
S.D. 15.9 d 0.9 S.D. 16.5 16.4 16.2															



		ARIES			VENUS -3.5			MARS -0.4			JUPITER -1.3			SATURN +0.4			STARS		
G.M.T.		G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	G.H.A.		Dec.	Name	S.H.A.	Dec.
d	h	°	'	°	°	'	°	°	°	'	°	°	'	°	°	'		°	°
29	00	337	01.5	215 04.3 N 19 48.6	81 39.8 S 25 53.8	149 36.0 S 1 58.5	299 40.2 N 12 00.7	Acamar	315 43.1 S 40 25.1										
	01	352	03.9	230 03.7 48.2	96 40.9 53.9	164 38.0 58.7	314 42.7 00.7	Achernar	335 50.6 S 57 23.1										
	02	7	06.4	245 03.0 47.7	111 42.0 54.0	179 40.0 58.9	329 45.2 00.6	Acrux	173 47.3 S 62 56.0										
	03	22	08.9	260 02.4 47.2	126 43.0 54.1	194 42.1 59.1	344 47.7 00.6	Adhara	255 38.7 S 28 55.4										
	04	37	11.3	275 01.8 46.7	141 44.1 54.2	209 44.1 59.3	359 50.2 00.6	Aldebaran	291 27.4 N 16 27.2										
	05	52	13.8	290 01.1 46.2	156 45.1 54.3	224 46.1 59.5	14 52.7 00.6												
	06	67	16.2	305 00.5 N 19 45.7	171 46.2 S 25 54.4	239 48.1 S 1 59.7	29 55.2 N 12 00.6	Alioth	166 49.7 N 56 07.6										
	07	82	18.7	319 59.9 45.2	186 47.2 54.5	254 50.1 1 59.9	44 57.7 00.5	Alkaid	153 24.9 N 49 28.0										
	08	97	21.2	334 59.2 44.7	201 48.3 54.6	269 52.1 2 00.1	60 00.2 00.5	Al Na'ir	28 24.4 S 47 06.5										
F	09	112	23.6	349 58.6 44.3	216 49.3 54.7	284 54.1 00.3	75 02.7 00.5	Anilam	276 20.0 S 1 12.9										
R	10	127	26.1	4 58.0 43.8	231 50.4 54.8	299 56.1 00.5	90 05.2 00.5	Alphard	218 28.8 S 8 31.4										
I	11	142	28.6	19 57.3 43.3	246 51.4 54.9	314 58.1 00.7	105 07.7 00.4												
D	12	157	31.0	34 56.7 N 19 42.8	261 52.5 S 25 54.9	330 00.2 S 2 00.9	120 10.2 N 12 00.4	Alphecca	126 39.0 N 26 49.1										
A	13	172	33.5	49 56.1 42.3	276 53.5 55.0	345 02.2 01.1	135 12.7 00.4	Alpheratz	358 17.5 N 28 55.4										
Y	14	187	36.0	64 55.4 41.8	291 54.6 55.1	0 04.2 01.3	150 15.2 00.4	Altair	62 40.2 N 8 47.3										
	15	202	38.4	79 54.8 41.3	306 55.6 55.2	15 06.2 01.5	165 17.7 00.4	Ankaa	353 47.6 S 42 28.0										
	16	217	40.9	94 54.2 40.8	321 56.7 55.3	30 08.2 01.7	180 20.2 00.3	Antares	113 06.8 S 26 22.1										
	17	232	43.3	109 53.5 40.3	336 57.7 55.4	45 10.2 01.9	195 22.7 00.3												
	18	247	45.8	124 52.9 N 19 39.8	351 58.8 S 25 55.5	60 12.2 S 2 02.1	210 25.2 N 12 00.3	Arcturus	146 25.9 N 19 20.5										
	19	262	48.3	139 52.3 39.3	6 59.8 55.6	75 14.2 02.3	225 27.7 00.3	Atria	108 38.4 S 68 58.9										
	20	277	50.7	154 51.6 38.8	22 00.9 55.7	90 16.2 02.5	240 30.1 00.3	Avior	234 32.3 S 59 24.4										
	21	292	53.2	169 51.0 38.3	37 01.9 55.8	105 18.2 02.7	255 32.6 00.2	Bellatrix	279 07.5 N 6 19.7										
	22	307	55.7	184 50.4 37.8	52 02.9 55.9	120 20.2 02.9	270 35.1 00.2	Betelgeuse	271 37.2 N 7 24.4										
	23	322	58.1	199 49.7 37.3	67 04.0 56.0	135 22.3 03.1	285 37.6 00.2												
30	00	338	00.6	214 49.1 N 19 36.8	82 05.0 S 25 56.1	150 24.3 S 2 03.3	300 40.1 N 12 00.2	Canopus	264 11.1 S 52 40.3										
	01	353	03.1	229 48.5 36.3	97 06.1 56.1	165 26.3 03.5	315 42.6 00.1	Capella	281 23.4 N 45 58.1										
	02	8	05.5	244 47.9 35.7	112 07.1 56.2	180 28.3 03.7	330 45.1 00.1	Deneb	49 53.7 N 45 10.4										
	03	23	08.0	259 47.2 35.2	127 08.1 56.3	195 30.3 03.9	345 47.6 00.1	Denebola	183 07.5 N 14 44.6										
	04	38	10.5	274 46.6 34.7	142 09.2 56.4	210 32.3 04.1	0 50.1 00.1	Diphda	349 28.6 S 18 08.9										
	05	53	12.9	289 46.0 34.2	157 10.2 56.5	225 34.3 04.3	15 52.6 00.1												
	06	68	15.4	304 45.3 N 19 33.7	172 11.3 S 25 56.6	240 36.3 S 2 04.5	30 55.1 N 12 00.0	Dubhe	194 32.3 N 61 55.0										
	07	83	17.8	319 44.7 33.2	187 12.3 56.7	255 38.3 04.7	45 57.6 00.0	Elnath	278 54.5 N 28 35.1										
S	08	98	20.3	334 44.1 32.7	202 13.3 56.8	270 40.3 04.9	61 00.1 00.0	Eltanin	91 01.3 N 51 29.7										
A	09	113	22.8	349 43.4 32.2	217 14.4 56.9	285 42.3 05.1	76 02.6 12 00.0	Enif	34 19.2 N 9 44.2										
T	10	128	25.2	4 42.8 31.6	232 15.4 57.0	300 44.3 05.3	91 05.1 11 59.9	Fomalhaut	15 59.8 S 29 46.9										
U	11	143	27.7	19 42.2 31.1	247 16.4 57.1	315 46.4 05.5	106 07.6 59.9												
R	12	158	30.2	34 41.6 N 19 30.6	262 17.5 S 25 57.1	330 48.4 S 2 05.7	121 10.1 N 11 59.9	Gacrux	172 38.6 S 56 56.7										
D	13	173	32.6	49 40.9 30.1	277 18.5 57.2	345 50.4 05.9	136 12.6 59.9	Gienah	176 26.7 S 17 22.4										
A	14	188	35.1	64 40.3 29.6	292 19.5 57.3	0 52.4 06.1	151 15.1 59.9	Hadar	149 35.6 S 60 13.9										
Y	15	203	37.6	79 39.7 29.1	307 20.6 57.4	15 54.4 06.3	166 17.6 59.8	Hamal	328 37.9 N 23 19.3										
	16	218	40.0	94 39.0 28.5	322 21.6 57.5	30 56.4 06.5	181 20.1 59.8	Kaus Aust.	84 27.4 S 34 24.2										
	17	233	42.5	109 38.4 28.0	337 22.6 57.6	45 58.4 06.7	196 22.6 59.8												
	18	248	44.9	124 37.8 N 19 27.5	352 23.7 S 25 57.7	61 00.4 S 2 06.9	211 25.1 N 11 59.8	Kochab	137 18.4 N 74 17.0										
	19	263	47.4	139 37.2 27.0	7 24.7 57.8	76 02.4 07.1	226 27.6 59.7	Markab	14 11.0 N 15 02.6										
	20	278	49.9	154 36.5 26.4	22 25.7 57.9	91 04.4 07.3	241 30.1 59.7	Menkar	314 49.5 N 3 58.5										
	21	293	52.3	169 35.9 25.9	37 26.8 57.9	106 06.4 07.5	256 32.6 59.7	Menkent	148 46.9 S 36 13.5										
	22	308	54.8	184 35.3 25.4	52 27.8 58.0	121 08.4 07.7	271 35.1 59.7	Miaplacidus	221 48.0 S 69 35.3										
	23	323	57.3	199 34.7 24.9	67 28.8 58.1	136 10.4 07.9	286 37.6 59.7												
31	00	338	59.7	214 34.0 N 19 24.3	82 29.8 S 25 58.2	151 12.5 S 2 08.1	301 40.1 N 11 59.6	Mirfak	309 27.7 N 49 45.2										
	01	354	02.2	229 33.4 23.8	97 30.9 58.3	166 14.5 08.3	316 42.6 59.6	Nunki	76 38.9 S 26 20.3										
	02	9	04.7	244 32.8 23.3	112 31.9 58.4	181 16.5 08.5	331 45.1 59.6	Peacock	54 10.4 S 56 50.2										
	03	24	07.1	259 32.1 22.7	127 32.9 58.5	196 18.5 08.7	346 47.6 59.6	Pollux	244 08.3 N 28 06.2										
	04	39	09.6	274 31.5 22.2	142 33.9 58.6	211 20.5 08.9	1 50.1 59.5	Procyon	245 34.5 N 5 18.5										
	05	54	12.1	289 30.9 21.7	157 34.9 58.6	226 22.5 09.1	16 52.6 59.5												
	06	69	14.5	304 30.3 N 19 21.1	172 36.0 S 25 58.7	241 24.5 S 2 09.3	31 55.2 N 11 59.5	Rasalhague	96 37.0 N 12 34.9										
	07	84	17.0	319 29.6 20.6	187 37.0 58.8	256 26.5 09.5	46 57.7 59.5	Regulus	208 18.9 N 12 07.1										
S	08	99	19.4	334 29.0 20.1	202 38.0 58.9	271 28.5 09.7	62 00.2 59.4	Rigel	281 43.9 S 8 13.8										
U	09	114	21.9	349 28.4 19.5	217 39.0 59.0	286 30.5 09.9	77 02.7 59.4	Rigel Kent.	140 37.4 S 60 42.8										
N	10	129	24.4	4 27.8 19.0	232 40.1 59.1	301 32.5 10.1	92 05.2 59.4	Sabik	102 50.4 S 15 41.4										
D	11	144	26.8	19 27.1 18.4	247 41.1 59.2	316 34.5 10.3	107 07.7 59.4												
A	12	159	29.3	34 26.5 N 19 17.9	262 42.1 S 25 59.2	331 36.5 S 2 10.5	122 10.2 N 11 59.4	Schedar	350 18.1 N 56 22.3										
Y	13	174	31.8	49 25.9 17.4	277 43.1 59.3	346 38.5 10.7	137 12.7 59.3	Shaula	97 06.7 S 37 05.2										
	14	189	34.2	64 25.3 16.8	292 44.1 59.4	1 40.5 10.9	152 15.2 59.3	Sirius	259 03.0 S 16 40.1										
	15	204	36.7	79 24.6 16.3	307 45.1 59.5	16 42.5 11.1	167 17.7 59.3	Spica	159 06.3 S 11 00.2										
	16	219	39.2	94 24.0 15.7	322 46.2 59.6	31 44.5 11.3	182 20.2 59.3	Suhail	223 17.3 S 43 18.3										
	17	234	41.6	109 23.4 15.2	337 47.2 59.7	46 46.6 11.5	197 22.7 59.2												
	18	249	44.1	124 22.8 N 19 14.6	352 48.2 S 25 59.7	61 48.6 S 2													

Mer. Pass. 1 27.7

v -0.6 d 0.5

v 1.0 d 0.1

v 2.0 d 0.2

v 2.5

d 0.0

G.M.T.	SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise			
	G.H.A.	Dec.	G.H.A.	φ	Dec.	d	H.P.		Naut.	Civil		29	30	31	I
d h	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	°	h m	h m	h m	h m	h m	h m	h m
29 00	179 44.2 N	9 30.3	340 26.1	12.3 S	0 56.3	17.1	59.2	N 72	///	02 13	03 50	19 02	18 20	17 16	
01	194 44.4	29.4	354 57.4	12.3	0 39.2	17.0	59.2	N 70	///	02 46	04 05	19 07	18 36	17 54	
02	209 44.5	28.5	9 28.7	12.4	0 22.2	17.0	59.2	68	01 05	03 09	04 18	19 12	18 49	18 20	17 27
03	224 44.7	27.6	24 00.1	12.3 S	0 05.2	17.0	59.1	66	01 55	03 27	04 27	19 16	19 00	18 41	18 12
04	239 44.9	26.8	38 31.4	12.5 N	0 11.8	17.0	59.1	64	02 24	03 42	04 36	19 19	19 09	18 57	18 42
05	254 45.1	25.9	53 02.9	12.4	0 28.8	16.9	59.1	62	02 46	03 54	04 43	19 22	19 17	19 11	19 05
06	269 45.3 N	9 25.0	67 34.3	12.5 N	0 45.7	16.9	59.0	60	03 03	04 04	04 49	19 25	19 24	19 23	19 23
07	284 45.5	24.1	82 05.8	12.5	1 02.6	16.9	59.0	N 58	03 17	04 12	04 55	19 27	19 30	19 33	19 39
08	299 45.7	23.2	96 37.3	12.6	1 19.5	16.9	59.0	56	03 29	04 20	05 00	19 29	19 35	19 42	19 52
F 09	314 45.8	22.3	111 08.9	12.6	1 36.4	16.8	58.9	54	03 39	04 26	05 04	19 31	19 40	19 50	20 04
R 10	329 46.0	21.4	125 40.5	12.6	1 53.2	16.8	58.9	52	03 48	04 32	05 08	19 33	19 44	19 57	20 14
I 11	344 46.2	20.5	140 12.1	12.6	2 10.0	16.8	58.9	50	03 56	04 37	05 12	19 35	19 48	20 04	20 23
D 12	359 46.4 N	9 19.7	154 43.7	12.7 N	2 26.8	16.7	58.8	45	04 12	04 49	05 19	19 38	19 57	20 18	20 42
A 13	14 46.6	18.8	169 15.4	12.7	2 43.5	16.8	58.8	N 40	04 24	04 57	05 25	19 41	20 04	20 30	20 58
Y 14	29 46.8	17.9	183 47.1	12.7	3 00.3	16.6	58.8	35	04 34	05 05	05 31	19 43	20 11	20 40	21 12
15	44 47.0	17.0	198 18.8	12.7	3 16.9	16.7	58.7	30	04 42	05 11	05 36	19 46	20 16	20 48	21 23
16	59 47.2	16.1	212 50.5	12.7	3 33.6	16.6	58.7	20	04 55	05 21	05 44	19 50	20 26	21 04	21 44
17	74 47.4	15.2	227 22.2	12.8	3 50.2	16.5	58.7	N 10	05 05	05 30	05 51	19 53	20 35	21 17	22 01
18	89 47.5 N	9 14.3	241 54.0	12.8 N	4 06.7	16.6	58.6	0	05 12	05 36	05 57	19 57	20 43	21 30	22 18
19	104 47.7	13.4	256 25.8	12.8	4 23.3	16.4	58.6	S 10	05 18	05 43	06 04	20 00	20 51	21 43	22 35
20	119 47.9	12.5	270 57.6	12.8	4 39.7	16.5	58.6	20	05 23	05 48	06 10	20 04	21 00	21 56	22 53
21	134 48.1	11.6	285 29.4	12.9	4 56.2	16.4	58.5	30	05 26	05 54	06 18	20 08	21 10	22 12	23 14
22	149 48.3	10.8	300 01.3	12.8	5 12.6	16.3	58.5	35	05 27	05 57	06 22	20 10	21 16	22 22	23 26
23	164 48.5	09.9	314 33.1	12.9	5 28.9	16.3	58.5	40	05 28	06 00	06 27	20 13	21 23	22 32	23 40
30 00	179 48.7 N	9 09.0	329 05.0	12.8 N	5 45.2	16.3	58.4	45	05 29	06 03	06 33	20 17	21 31	22 45	23 57
01	194 48.9	08.1	343 36.8	12.9	6 01.5	16.2	58.4	S 50	05 29	06 06	06 39	20 20	21 41	23 00	24 18
02	209 49.1	07.2	358 07.7	12.9	6 17.7	16.1	58.3	52	05 29	06 08	06 42	20 22	21 45	23 07	24 28
03	224 49.2	06.3	12 40.6	12.9	6 33.8	16.1	58.3	54	05 29	06 10	06 46	20 24	21 50	23 15	24 40
04	239 49.4	05.4	27 12.5	12.9	6 49.9	16.0	58.3	56	05 29	06 12	06 49	20 27	21 56	23 25	24 53
05	254 49.6	04.5	41 44.4	12.9	7 05.9	16.0	58.2	58	05 28	06 13	06 53	20 29	22 02	23 35	25 08
06	269 49.8 N	9 03.6	56 16.3	12.9 N	7 21.9	16.0	58.2	S 60	05 27	06 16	06 58	20 32	22 09	23 47	25 26
07	284 50.0	02.7	70 48.2	12.9	7 37.9	15.8	58.2								
S 08	299 50.2	01.8	85 20.1	12.9	7 53.7	15.9	58.1	Lat.	Sun-set	Twilight		Moonset			
A 09	314 50.4	00.9	99 52.0	13.0	8 09.6	15.7	58.1			Civil	Naut.	29	30	31	I
T 10	329 50.6	9 00.0	114 24.0	12.9	8 25.3	15.7	58.1	°	h m	h m	h m	h m	h m	h m	h m
U 11	344 50.8	8 59.1	128 55.9	12.9	8 41.0	15.7	58.0	N 72	20 08	21 41	///	07 47	10 10	12 53	
R 12	359 51.0 N	8 58.2	143 27.8	12.9 N	8 56.7	15.5	58.0	N 70	19 53	21 10	///	07 45	09 56	12 18	
D 13	14 51.2	57.3	157 59.7	12.9	9 12.2	15.5	57.9	68	19 41	20 48	22 45	07 44	09 46	11 53	14 26
A 14	29 51.3	56.4	172 31.6	12.9	9 27.7	15.5	57.9	66	19 32	20 31	22 01	07 43	09 37	11 34	13 42
Y 15	44 51.5	55.5	187 03.5	12.9	9 43.2	15.4	57.9	64	19 23	20 17	21 33	07 42	09 30	11 19	13 13
16	59 51.7	54.7	201 35.4	12.9	9 58.6	15.3	57.8	62	19 16	20 06	21 12	07 41	09 23	11 06	12 51
17	74 51.9	53.8	216 07.3	12.9	10 13.9	15.2	57.8	60	19 10	19 56	20 55	07 40	09 18	10 55	12 34
18	89 52.1 N	8 52.9	230 39.2	12.9 N	10 29.1	15.2	57.8	N 58	19 05	19 47	20 42	07 40	09 13	10 46	12 19
19	104 52.3	52.0	245 11.1	12.9	10 44.3	15.1	57.7	56	19 00	19 40	20 30	07 39	09 09	10 38	12 07
20	119 52.5	51.1	259 43.0	12.8	10 59.4	15.0	57.7	54	18 56	19 33	20 20	07 39	09 05	10 31	11 56
21	134 52.7	50.2	274 14.8	12.9	11 14.4	15.0	57.6	52	18 52	19 28	20 12	07 38	09 02	10 25	11 46
22	149 52.9	49.3	288 46.7	12.8	11 29.4	14.9	57.6	50	18 49	19 23	20 04	07 38	08 59	10 19	11 38
23	164 53.1	48.4	303 18.5	12.8	11 44.3	14.8	57.6	45	18 41	19 12	19 48	07 37	08 52	10 06	11 20
31 00	179 53.3 N	8 47.5	317 50.3	12.8 N	11 59.1	14.7	57.5	N 40	18 35	19 03	19 36	07 36	08 47	09 56	11 05
01	194 53.5	46.6	332 22.1	12.8	12 13.8	14.7	57.5	35	18 30	18 56	19 26	07 35	08 42	09 48	10 53
02	209 53.7	45.7	346 53.9	12.8	12 28.5	14.6	57.5	30	18 25	18 50	19 18	07 35	08 38	09 40	10 42
03	224 53.9	44.8	1 25.7	12.8	12 43.1	14.5	57.4	20	18 17	18 40	19 06	07 34	08 31	09 27	10 23
04	239 54.0	43.9	15 57.5	12.7	12 57.6	14.4	57.4	N 10	18 10	18 32	18 56	07 33	08 25	09 16	10 08
05	254 54.2	43.0	30 29.2	12.7	13 12.0	14.3	57.4	0	18 04	18 25	18 49	07 32	08 19	09 05	09 53
06	269 54.4 N	8 42.1	45 00.9	12.7 N	13 26.3	14.3	57.3	S 10	17 58	18 19	18 43	07 31	08 13	08 55	09 38
07	284 54.6	41.2	59 32.6	12.7	13 40.6	14.2	57.3	20	17 51	18 13	18 39	07 30	08 07	08 44	09 22
08	299 54.8	40.3	74 04.3	12.7	13 54.8	14.1	57.2	30	17 44	18 08	18 36	07 29	08 00	08 31	09 04
S 09	314 55.0	39.4	88 36.0	12.6	14 08.9	14.0	57.2	35	17 40	18 05	18 34	07 28	07 56	08 24	08 54
U 10	329 55.2	38.5	103 07.6	12.7	14 22.9	13.9	57.2	40	17 35	18 02	18 34	07 28	07 51	08 15	08 42
N 11	344 55.4	37.6	117 39.3	12.6	14 36.8	13.9	57.1	45	17 29	17 59	18 33	07 27	07 46	08 06	08 28
D 12	359 55.6 N	8 36.7	132 10.9	12.5 N	14 50.7	13.7	57.1	S 50	17 23	17 56	18 33	07 26	07 40	07 54	08 11
A 13	14 55.8	35.8	146 42.4	12.6	15 04.4	13.7	57.1	52	17 20	17 54	18 33	07 25	07 37	07 49	08 03
Y 14	29 56.0	34.9	161 14.0	12.5	15 18.1	13.6	57.0	54	17 17	17 52	18 33	07 25	07 34	07 43	07 54
15	44 56.2	34.0	175 45.5	12.5	15 31.7	13.4	57.0	56	17 13	17 51	18 34	07 24	07 30	07	

		ARIES		VENUS -3-4		MARS -0-3		JUPITER -1-3		SATURN +0-4		STARS				
G.M.T.		G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.	
d	h															
MOON DAY	00	339 58.9	214 19.0	N 19 11.3	82 54.2	S 26 00.3	152 00.6	S 2 12.9	302 40.2	N 11 59.1			Acamar	315 43.0	S 40 25.1	
	01	355 01.3	229 18.4	10.8	97 55.3	00.3	167 02.6	13.1	317 42.8	59.0			Achernar	335 50.5	S 57 23.1	
	02	10 03.8	244 17.8	10.2	112 56.3	00.4	182 04.6	13.3	332 45.3	59.0			Acruz	173 47.3	S 62 56.0	
	03	25 06.3	259 17.2	09.7	127 57.3	00.5	197 06.6	13.5	347 47.8	59.0			Adhara	255 38.7	S 28 55.4	
	04	40 08.7	274 16.5	09.1	142 58.3	00.6	212 08.6	13.7	2 50.3	59.0			Aldebaran	291 27.3	N 16 27.2	
	05	55 11.2	289 15.9	08.6	157 59.3	00.7	227 10.6	13.9	17 52.8	58.9						
	06	70 13.7	304 15.3	N 19 08.0	173 00.3	S 26 00.7	242 12.6	S 2 14.1	32 55.3	N 11 58.9			Alioth	166 49.7	N 56 07.6	
	07	85 16.1	319 14.7	07.4	188 01.3	00.8	257 14.6	14.3	47 57.8	58.9			Alkaid	153 24.9	N 49 28.0	
	08	100 18.6	334 14.1	06.9	203 02.3	00.9	272 16.6	14.5	63 00.3	58.9			Al Na'ir	28 24.4	S 47 06.5	
	09	115 21.0	349 13.4	06.3	218 03.3	01.0	287 18.6	14.7	78 02.8	58.8			Alnilam	276 20.0	S 1 12.2	
TUESDAY	10	130 23.5	4 12.8	05.8	233 04.3	01.1	302 20.6	14.9	93 05.3	58.8			Alphard	218 28.8	S 8 31.4	
	11	145 26.0	19 12.2	05.2	248 05.3	01.2	317 22.6	15.1	108 07.8	58.8						
	12	160 28.4	34 11.6	N 19 04.6	263 06.3	S 26 01.2	332 24.6	S 2 15.3	123 10.3	N 11 58.8			Alphecca	126 39.0	N 26 49.1	
	13	175 30.9	49 11.0	04.1	278 07.3	01.3	347 26.6	15.5	138 12.8	58.7			Alpheratz	358 17.5	N 28 55.5	
	14	190 33.4	64 10.3	03.5	293 08.3	01.4	2 28.6	15.7	153 15.4	58.7			Altair	62 40.2	N 8 47.3	
	15	205 35.8	79 09.7	02.9	308 09.3	01.5	17 30.6	15.9	168 17.9	58.7			Ankaa	353 47.6	S 42 28.0	
	16	220 38.3	94 09.1	02.4	323 10.3	01.6	32 32.7	16.1	183 20.4	58.7			Antares	113 06.8	S 26 22.1	
	17	235 40.8	109 08.5	01.8	338 11.3	01.6	47 34.7	16.3	198 22.9	58.6						
	18	250 43.2	124 07.9	N 19 01.2	353 12.3	S 26 01.7	62 36.7	S 2 16.5	213 25.4	N 11 58.6			Arcturus	146 25.9	N 19 20.5	
	19	265 45.7	139 07.2	00.7	8 13.3	01.8	77 38.7	16.7	228 27.9	58.6			Atria	108 38.4	S 68 58.9	
WEDNESDAY	20	280 48.2	154 06.6	19 00.1	23 14.3	01.9	92 40.7	16.9	243 30.4	58.6			Avior	234 32.3	S 59 24.4	
	21	295 50.6	169 06.0	18 59.5	38 15.3	02.0	107 42.7	17.1	258 32.9	58.5			Bellatrix	279 07.5	N 6 19.7	
	22	310 53.1	184 05.4	59.0	53 16.3	02.0	122 44.7	17.3	273 35.4	58.5			Betelgeuse	271 37.1	N 7 24.4	
	23	325 55.5	199 04.8	58.4	68 17.3	02.1	137 46.7	17.5	288 37.9	58.5						
	00	340 58.0	214 04.1	N 18 57.8	83 18.3	S 26 02.2	152 48.7	S 2 17.7	303 40.4	N 11 58.5			Canopus	264 11.1	S 52 40.3	
	01	356 00.5	229 03.5	57.2	98 19.3	02.3	167 50.7	17.9	318 43.0	58.4			Capella	281 23.3	N 45 58.1	
	02	11 02.9	244 02.9	56.7	113 20.3	02.3	182 52.7	18.1	333 45.5	58.4			Deneb	49 53.7	N 45 10.4	
	03	26 05.4	259 02.3	56.1	128 21.3	02.4	197 54.7	18.3	348 48.0	58.4			Denebola	183 07.5	N 14 44.6	
	04	41 07.9	274 01.7	55.5	143 22.3	02.5	212 56.7	18.5	3 50.5	58.4			Diphda	349 28.6	S 18 08.9	
	05	56 10.3	289 01.1	54.9	158 23.3	02.6	227 58.7	18.7	18 53.0	58.3						
THURSDAY	06	71 12.8	304 00.4	N 18 54.3	173 24.2	S 26 02.7	243 00.7	S 2 18.9	33 55.5	N 11 58.3			Dubhe	194 32.3	N 61 55.0	
	07	86 15.3	318 59.8	53.8	188 25.2	02.7	258 02.7	19.1	48 58.0	58.3			Elmath	278 54.4	N 28 35.1	
	08	101 17.7	333 59.2	53.2	203 26.2	02.8	273 04.7	19.3	64 00.5	58.3			Eltanin	91 01.3	S 51 29.7	
	09	116 20.2	348 58.6	52.6	218 27.2	02.9	288 06.7	19.5	79 03.0	58.2			Enif	34 19.2	N 9 44.2	
	10	131 22.7	3 58.0	52.0	233 28.2	03.0	303 08.7	19.7	94 05.6	58.2			Fomalhaut	15 59.8	S 29 46.9	
	11	146 25.1	18 57.4	51.4	248 29.2	03.0	318 10.7	19.9	109 08.1	58.2						
	12	161 27.6	33 56.8	N 18 50.8	263 30.2	S 26 03.1	333 12.7	S 2 20.1	124 10.6	N 11 58.2			Gacrux	172 38.6	S 56 56.7	
	13	176 30.0	48 56.1	50.3	278 31.2	03.2	348 14.7	20.3	139 13.1	58.1			Gienah	176 26.7	S 17 22.4	
	14	191 32.5	63 55.5	49.7	293 32.2	03.3	3 16.7	20.5	154 15.6	58.1			Hadar	149 35.6	S 60 13.9	
	15	206 35.0	78 54.9	49.1	308 33.1	03.3	18 18.7	20.8	169 18.1	58.1			Hamal	328 37.9	N 23 19.3	
FRIDAY	16	221 37.4	93 54.3	48.5	323 34.1	03.4	33 20.7	21.0	184 20.6	58.1			Kaus Aust.	84 27.4	S 34 24.2	
	17	236 39.9	108 53.7	47.9	338 35.1	03.5	48 22.7	21.2	199 23.2	58.0						
	18	251 42.4	123 53.1	N 18 47.3	353 36.1	S 26 03.6	63 24.7	S 2 21.4	214 25.7	N 11 58.0			Kochab	137 18.5	N 74 17.0	
	19	266 44.8	138 52.5	46.7	8 37.1	03.6	78 26.7	21.6	229 28.2	58.0			Markab	14 11.0	N 15 02.6	
	20	281 47.3	153 51.8	46.1	23 38.0	03.7	93 28.7	21.8	244 30.7	57.9			Menkar	314 49.5	N 3 58.5	
	21	296 49.8	168 51.2	45.5	38 39.0	03.8	108 30.7	22.0	259 33.2	57.9			Menkent	148 46.9	S 36 13.4	
	22	311 52.2	183 50.6	44.9	53 40.0	03.9	123 32.7	22.2	274 35.7	57.9			Miaplacidus	221 48.0	S 69 35.3	
	23	326 54.7	198 50.0	44.3	68 41.0	03.9	138 34.7	22.4	289 38.2	57.9						
	00	341 57.2	213 49.4	N 18 43.7	83 42.0	S 26 04.0	153 36.7	S 2 22.6	304 40.8	N 11 57.8			Mirfak	309 27.7	N 49 45.3	
	01	356 59.6	228 48.8	43.1	98 42.9	04.1	168 38.7	22.8	319 43.3	57.8			Nunki	76 39.0	S 26 20.3	
SATURDAY	02	12 02.1	243 48.2	42.5	113 43.9	04.2	183 40.7	23.0	334 45.8	57.8			Peacock	54 10.4	S 56 50.2	
	03	27 04.5	258 47.6	41.9	128 44.9	04.2	198 42.7	23.2	349 48.3	57.8			Pollux	244 08.3	N 28 06.2	
	04	42 07.0	273 46.9	41.3	143 45.9	04.3	213 44.7	23.4	4 50.8	57.7			Procyon	245 34.4	N 5 18.5	
	05	57 09.5	288 46.3	40.7	158 46.9	04.4	228 46.7	23.6	19 53.3	57.7						
	06	72 11.9	303 45.7	N 18 40.1	173 47.8	S 26 04.5	243 48.7	S 2 23.8	34 55.8	N 11 57.7			Rasalhague	96 37.0	N 12 34.9	
	07	87 14.4	318 45.1	39.5	188 48.8	04.5	258 50.7	24.0	49 58.4	57.6			Regulus	208 18.9	N 12 07.1	
	08	102 16.9	333 44.5	38.9	203 49.8	04.6	273 52.7	24.2	65 00.9	57.6			Rigel	281 43.8	S 8 13.8	
	09	117 19.3	348 43.9	38.3	218 50.8	04.7	288 54.7	24.4	80 03.4	57.6			Rigel Kent.	140 37.4	S 60 42.8	
	10	132 21.8	3 43.3	37.7	233 51.7	04.7	303 56.7	24.6	95 05.9	57.6			Sabik	102 50.4	S 15 41.4	
	11	147 24.3	18 42.7	37.1	248 52.7	04.8	318 58.7	24.8	110 08.4	57.5						
SUNDAY	12	162 26.7	33 42.0	N 18 36.5	263 53.7	S 26 04.9	334 00.7	S 2 25.0	125 10.9	N 11 57.5			Schedar	350 18.1	N 56 22.3	
	13	177 29.2	48 41.4	35.9	278 54.6	05.0	349 02.7	25.2	140 13.5	57.5			Shaula	97 06.7	S 37 05.2	
	14	192 31.7	63 40.8	35.3	293 55.6	05.0	4 04.7	25.4	155 16.0	57.5			Sirius	259 03.0	S 16 40.1	
	15	207 34.1	78 40.2	34.7	308 56.6	05.1	19 06.7	25.6	170 18.5	57.4			Spica	159 06.3	N 11 00.2	
	16	222 36.6	93 39.6	34.1	323 57.6	05.2	34 08.7	25.8	185 21.0	57.4			Suhail	223 17.3	S 43 18.3	
	17	237 39.0	108 39.0	33.5	338 58.5	05.2	49 10.7	26.0	200 23.5	57.4						
	18	252 41.5	123 38.4	N 18 32.8	353 59.5	S 26 05.3	64 12.7	S 2 26.2	215 26.0	N 11 57.3			Vega	81 01.1	N 38 45.4	
	19	267 44.0	138 37.8	32.2	9 00.5	05.4	79 14.7	26.4	230 28.6	57.3			Zuben'ubi	137 42.2	S 15 55.1	
	20	282 46.4	153 37.2	31.6	24 01.4	05.5	94 16.7	26.6	245 31.1	57.3						
	21	297 48.9	168 36.6	31.0	39 02.4	05.5	109 18.7	26.8	260 33.6	57.3				S.H.A.	Mer. Pass.	
22	312 51.4	183 36.0	30.4	54 03.4	05.6	124 20.7	27.0	275 36.1	57.2			Venus	233 06.1	h 9 44		
23	327 53.8	198 35.3	29.8	69 04.3	05.7	139 22.7	27.2	290 38.6	57.2			Mars	102 20.3	h 18 26		
Mer. Pass.		h 15.9	v -0.6	d 0.6	v 1.0	d 0.1	v 2.0	d 0.2	v 2.5	d 0.0	Jupiter				171 50.7	h 13 47
											Saturn				322 42.4	h 3 45

G.M.T.	SUN				MOON				Lat.	Twilight		Sun-rise	Moonrise						
	G.H.A.		Dec.	d	H.P.	Naut.	Civil	1		2	3		4						
	d	h																	
1 00	179	57.9	N 8	25.8	306	28.0	12.2	N 17	29.7	12.6	56.7	N 70	03 03	04 18	17 27	18 15	18 44	20 00	
01	194	58.1	N	24.9	320	59.2	12.2	17	42.3	12.6	56.6	68	01 38	03 23	04 29	17 27	18 15	18 44	20 00
02	209	58.3		24.0	335	30.4	12.2	17	54.9	12.4	56.6	66	02 14	03 39	04 37	18 12	18 15	18 44	20 00
03	224	58.5	..	23.1	350	01.6	12.1	18	07.3	12.3	56.6	64	02 39	03 52	04 45	18 12	18 15	18 44	20 00
04	239	58.7		22.2	4	32.7	12.1	18	19.6	12.3	56.5	62	02 58	04 03	04 51	19 05	18 57	18 44	20 00
05	254	58.9		21.3	19	03.8	12.1	18	31.9	12.1	56.5	60	03 13	04 12	04 56	19 23	19 26	19 35	20 00
06	269	59.1	N 8	20.4	33	34.9	12.0	N 18	44.0	12.0	56.5	N 58	03 26	04 19	05 01	19 39	19 49	20 06	20 40
07	284	59.3		19.5	48	05.9	12.0	18	56.0	12.0	56.4	56	03 37	04 26	05 06	19 52	20 07	20 30	21 08
08	299	59.5		18.6	62	36.9	11.9	19	08.0	11.8	56.4	54	03 46	04 32	05 09	20 04	20 22	20 50	21 30
09	314	59.7	..	17.7	77	07.8	12.0	19	19.8	11.7	56.4	52	03 54	04 37	05 13	20 14	20 36	21 06	21 48
10	329	59.9		16.8	91	38.8	11.9	19	31.5	11.6	56.3	50	04 01	04 42	05 16	20 23	20 47	21 20	22 03
11	345	00.1		15.9	106	09.7	11.8	19	43.1	11.5	56.3	45	04 16	04 52	05 23	20 42	21 12	21 49	22 34
12	0 00.3	N 8	15.0	120	40.5	11.8	N 19	54.6	11.4	56.3	N 40	04 27	05 01	05 28	20 58	21 31	22 11	22 58	
13	15 00.5		14.1	135	11.3	11.8	20	06.0	11.3	56.2	35	04 37	05 07	05 33	21 12	21 48	22 30	23 18	
14	30 00.7		13.1	149	42.1	11.7	20	17.3	11.2	56.2	30	04 44	05 13	05 37	21 23	22 02	22 46	23 35	
15	45 00.9	..	12.2	164	12.8	11.7	20	28.5	11.1	56.2	20	04 56	05 22	05 44	21 44	22 27	23 13	24 03	
16	60 01.1		11.3	178	43.5	11.6	20	39.6	10.9	56.1	N 10	05 05	05 29	05 51	22 01	22 48	23 37	24 28	
17	75 01.3		10.4	193	14.2	11.6	20	50.5	10.9	56.1	0	05 11	05 35	05 56	22 18	23 08	23 59	24 51	
18	90 01.5	N 8	09.5	207	44.8	11.6	N 21	01.4	10.7	56.1	S 10	05 16	05 41	06 02	22 35	23 28	24 21	00 21	
19	105 01.7		08.6	222	15.4	11.5	21	12.1	10.7	56.0	20	05 20	05 46	06 08	22 53	23 49	24 45	00 45	
20	120 01.9		07.7	236	45.9	11.5	21	22.8	10.5	56.0	30	05 23	05 50	06 14	23 14	24 14	00 14	01 13	
21	135 02.1	..	06.8	251	16.4	11.5	21	33.3	10.4	56.0	35	05 23	05 53	06 18	23 26	24 29	00 29	01 29	
22	150 02.3		05.9	265	46.9	11.4	21	43.7	10.3	55.9	40	05 24	05 55	06 22	23 40	24 46	00 46	01 48	
23	165 02.5		05.0	280	17.3	11.4	21	54.0	10.1	55.9	45	05 24	05 58	06 27	23 57	25 07	01 07	02 12	
2 00	180 02.7	N 8	04.1	294	47.7	11.4	N 22	04.1	10.1	55.9	S 50	05 23	06 00	06 33	24 18	00 18	01 33	02 42	
01	195 02.9		03.1	309	18.1	11.3	22	14.2	9.9	55.8	52	05 23	06 02	06 36	24 28	00 28	01 46	02 57	
02	210 03.1		02.2	323	48.4	11.2	22	24.1	9.8	55.8	54	05 22	06 03	06 38	24 40	00 40	02 01	03 14	
03	225 03.3	..	01.3	338	18.6	11.2	22	33.9	9.8	55.8	56	05 21	06 04	06 42	24 53	00 53	02 18	03 35	
04	240 03.5	8	00.4	352	48.9	11.2	22	43.7	9.5	55.7	58	05 20	06 06	06 45	25 08	01 08	02 39	04 02	
05	255 03.7	7	59.5	7	19.1	11.1	22	53.2	9.5	55.7	S 60	05 19	06 07	06 49	25 26	01 26	03 06	04 39	
06	270 03.9	N 7	58.6	21	49.2	11.1	N 23	02.7	9.3	55.7									
07	285 04.1		57.7	36	19.3	11.1	23	12.0	9.3	55.7	Lat.	Sun-set	Twilight	Moonset					
08	300 04.3		56.8	50	49.4	11.0	23	21.3	9.1	55.6			Civil	Naut.	1	2	3	4	
09	315 04.5	..	55.9	65	19.4	11.0	23	30.4	9.0	55.6		h m	h m	h m	h m	h m	h m	h m	h m
10	330 04.7		54.9	79	49.4	11.0	23	39.4	8.8	55.6	N 72	19 51	21 18	23 22	14 26	15 03	15 50	16 33	
11	345 04.9		54.0	94	19.4	10.9	23	48.2	8.8	55.5	N 70	19 39	20 52	23 22	14 26	15 03	15 50	16 33	
12	0 05.1	N 7	53.1	108	49.3	10.8	N 23	57.0	8.6	55.5	68	19 28	20 33	23 22	14 26	15 03	15 50	16 33	
13	15 05.3		52.2	123	19.1	10.9	24	05.6	8.5	55.5	66	19 20	20 17	23 22	14 26	15 03	15 50	16 33	
14	30 05.5		51.3	137	49.0	10.8	24	14.1	8.3	55.5	64	19 13	20 05	23 17	13 13	15 23	16 41	17 13	
15	45 05.7	..	50.4	152	18.8	10.7	24	22.4	8.3	55.4	62	19 07	19 55	20 58	12 51	14 41	16 41	17 13	
16	60 05.9		49.5	166	48.5	10.7	24	30.7	8.1	55.4	60	19 01	19 46	20 44	12 34	14 13	15 50	17 13	
17	75 06.1		48.6	181	18.2	10.7	24	38.8	8.0	55.4	N 58	18 57	19 38	20 31	12 19	13 51	15 19	16 33	
18	90 06.3	N 7	47.6	195	47.9	10.7	N 24	46.8	7.8	55.4	56	18 53	19 32	20 21	12 07	13 34	14 55	16 05	
19	105 06.5		46.7	210	17.6	10.6	24	54.6	7.8	55.3	54	18 49	19 26	20 12	11 56	13 19	14 36	15 44	
20	120 06.7		45.8	224	47.2	10.5	25	02.4	7.6	55.3	52	18 46	19 21	20 04	11 46	13 06	14 20	15 26	
21	135 06.9	..	44.9	239	16.7	10.6	25	10.0	7.4	55.3	50	18 42	19 16	19 57	11 38	12 54	14 07	15 10	
22	150 07.1		44.0	253	46.3	10.5	25	17.4	7.4	55.3	45	18 36	19 06	19 42	11 20	12 31	13 39	14 40	
23	165 07.3		43.1	268	15.8	10.4	25	24.8	7.2	55.2	N 40	18 31	18 58	19 31	11 05	12 12	13 16	14 16	
3 00	180 07.5	N 7	42.2	282	45.2	10.4	N 25	32.0	7.1	55.2	35	18 26	18 52	19 22	10 53	11 56	12 58	13 56	
01	195 07.7		41.2	297	14.6	10.4	25	39.1	7.0	55.2	30	18 22	18 46	19 14	10 42	11 43	12 43	13 39	
02	210 07.9		40.3	311	44.0	10.4	25	46.1	6.8	55.2	20	18 15	18 37	19 03	10 23	11 20	12 16	13 11	
03	225 08.1	..	39.4	326	13.4	10.3	25	52.9	6.7	55.1	N 10	18 09	18 30	18 54	10 08	11 00	11 53	12 47	
04	240 08.3		38.5	340	42.7	10.3	25	59.6	6.5	55.1	0	18 03	18 24	18 48	09 53	10 42	11 32	12 24	
05	255 08.5		37.6	355	12.0	10.2	26	06.1	6.5	55.1	S 10	17 57	18 19	18 43	09 38	10 23	11 11	12 01	
06	270 08.7	N 7	36.7	9	41.2	10.3	N 26	12.6	6.3	55.1	20	17 52	18 14	18 40	09 22	10 04	10 48	11 37	
07	285 08.9		35.7	24	10.5	10.2	26	18.9	6.1	55.0	30	17 45	18 09	18 37	09 04	09 41	10 22	11 09	
08	300 09.1		34.8	38	39.7	10.1	26	25.0	6.1	55.0	35	17 42	18 07	18 37	08 54	09 28	10 07	10 52	
09	315 09.3	..	33.9	53	08.8	10.1	26	31.1	5.9	55.0	40	17 38	18 05	18 36	08 42	09 13	09 49	10 32	
10	330 09.5		33.0	67	37.9	10.1	26	37.0	5.7	55.0	45	17 33	18 02	18 36	08 28	08 55	09 28	10 09	
11	345 09.7		32.1	82	07.0	10.1	26	42.7	5.7	54.9	S 50	17 27	18 00	18 37	08 11	08 33	09 01	09 38	
12	0 09.9	N 7	31.2	96	36.1	10.1	N 26	48.4	5.5	54.9	52	17 25	17 59	18 38	08 03	08 22	08 47	09 23	
13	15 10.1		30.2	111	05.2	10.0	26	53.9	5.3	54.9	54	17 22	17 58	18 38	07 54	08 10	08 32	09 06	
14	30 10.3		29.3	125	34.2	10.0	26	59.2	5.2	54.9	56	17 19	17 56	18 39	07 45	07 56	08 15	08 44	
15	45 10.5	..	28.4	140	03.2	9.9	27	04.4	5.1	54.9	58	17 15	17 55	18 40	07 33	07 41	07 53	08 17	
16</																			

G.M.T.		ARIES			VENUS -3-4			MARS -0-3			JUPITER -1-2			SATURN +0-4			STARS		
		G.H.A.			G.H.A.			G.H.A.			G.H.A.			G.H.A.			Name	S.H.A.	Dec.
d h		° ' "			° ' "			° ' "			° ' "			° ' "				° ' "	° ' "
4	00	342 56.3	213 34.7	N 18 29.1	84 05.3	S 26 05.7	154 24.7	S 2 27.4	305 41.2	N 11 57.2				Acamar	315 43.0	S 40 25.1			
	01	357 58.8	228 34.1	28.5	99 06.3	05.8	169 26.7	27.6	320 43.7	57.1				Achernar	335 50.5	S 57 23.1			
	02	13 01.2	243 33.5	27.9	114 07.2	05.9	184 28.7	27.8	335 46.2	57.1				Acru	173 47.3	S 62 56.0			
	03	28 03.7	258 32.9	27.3	129 08.2	05.9	199 30.7	28.0	350 48.7	57.1				Adhara	255 38.7	S 28 55.4			
	04	43 06.2	273 32.3	26.7	144 09.1	06.0	214 32.7	28.2	5 51.2	57.1				Aldebaran	291 27.3	N 16 27.2			
T	05	58 08.6	288 31.7	26.0	159 10.1	06.1	229 34.7	28.4	20 53.8	57.0									
	06	73 11.1	303 31.1	N 18 25.4	174 11.1	S 26 06.1	244 36.7	S 2 28.6	35 56.3	N 11 57.0				Alioth	166 49.7	N 56 07.6			
	07	88 13.5	318 30.5	24.8	189 12.0	06.2	259 38.7	28.8	50 58.8	57.0				Alkaid	153 24.9	N 49 28.0			
	08	103 16.0	333 29.9	24.2	204 13.0	06.3	274 40.7	29.0	66 01.3	57.0				Al Na'ir	28 24.4	S 47 06.5			
	09	118 18.5	348 29.3	23.5	219 13.9	06.3	289 42.7	29.2	81 03.8	56.9				Alnilam	276 19.9	S 1 12.9			
H	10	133 20.9	3 28.7	22.9	234 14.9	06.4	304 44.7	29.4	96 06.4	56.9				Alphard	218 28.8	S 8 31.4			
	11	148 23.4	18 28.1	22.3	249 15.9	06.5	319 46.7	29.6	111 08.9	56.9									
	12	163 25.9	33 27.5	N 18 21.6	264 16.8	S 26 06.5	334 48.7	S 2 29.9	126 11.4	N 11 56.8				Alphecca	126 39.0	N 26 49.1			
	13	178 28.3	48 26.9	21.0	279 17.8	06.6	349 50.7	30.1	141 13.9	56.8				Alpheratz	358 17.5	N 28 55.5			
	14	193 30.8	63 26.3	20.4	294 18.7	06.7	4 52.7	30.3	156 16.4	56.8				Altair	62 40.2	N 8 47.3			
Y	15	208 33.3	78 25.7	19.7	309 19.7	06.7	19 54.7	30.5	171 19.0	56.7				Ankaa	353 47.6	S 42 28.0			
	16	223 35.7	93 25.1	19.1	324 20.6	06.8	34 56.7	30.7	186 21.5	56.7				Antares	113 06.8	S 26 22.1			
	17	238 38.2	108 24.4	18.5	339 21.6	06.9	49 58.7	30.9	201 24.0	56.7									
	18	253 40.6	123 23.8	N 18 17.8	354 22.5	S 26 06.9	65 00.7	S 2 31.1	216 26.5	N 11 56.7				Arcturus	146 26.0	N 19 20.5			
	19	268 43.1	138 23.2	17.2	9 23.5	07.0	80 02.7	31.3	231 29.1	56.6				Atria	108 38.5	S 68 58.9			
20	20	283 45.6	153 22.6	16.6	24 24.4	07.1	95 04.7	31.5	246 31.6	56.6				Avior	234 32.2	S 59 24.3			
	21	298 48.0	168 22.0	15.9	39 25.4	07.1	110 06.7	31.7	261 34.1	56.6				Bellatrix	279 07.5	N 6 19.7			
	22	313 50.5	183 21.4	15.3	54 26.3	07.2	125 08.7	31.9	276 36.6	56.5				Betelgeuse	271 37.1	N 7 24.4			
	23	328 53.0	198 20.8	14.6	69 27.3	07.3	140 10.7	32.1	291 39.1	56.5									
5	00	343 55.4	213 20.2	N 18 14.0	84 28.2	S 26 07.3	155 12.7	S 2 32.3	306 41.7	N 11 56.5				Canopus	264 11.0	S 52 40.2			
	01	358 57.9	228 19.6	13.4	99 29.2	07.4	170 14.7	32.5	321 44.2	56.5				Capella	281 23.3	N 45 58.1			
	02	14 00.4	243 19.0	12.7	114 30.1	07.4	185 16.7	32.7	336 46.7	56.4				Deneb	49 53.7	N 45 10.4			
	03	29 02.8	258 18.4	12.1	129 31.1	07.5	200 18.7	32.9	351 49.2	56.4				Denebola	183 07.5	N 14 44.6			
	04	44 05.3	273 17.8	11.4	144 32.0	07.6	215 20.6	33.1	6 51.8	56.4				Diphda	349 28.6	S 18 08.9			
F	05	59 07.7	288 17.2	10.8	159 33.0	07.6	230 22.6	33.3	21 54.3	56.3									
	06	74 10.2	303 16.6	N 18 10.1	174 33.9	S 26 07.7	245 24.6	S 2 33.5	36 56.8	N 11 56.3				Dubhe	194 32.3	N 61 55.0			
	07	89 12.7	318 16.0	09.5	189 34.9	07.8	260 26.6	33.7	51 59.3	56.3				Elnath	278 54.4	N 28 35.1			
	08	104 15.1	333 15.4	08.8	204 35.8	07.8	275 28.6	33.9	67 01.9	56.3				Eltanin	91 01.3	N 51 29.7			
	09	119 17.6	348 14.8	08.2	219 36.8	07.9	290 30.6	34.1	82 04.4	56.2				Enif	34 19.2	N 9 44.2			
R	10	134 20.1	3 14.2	07.5	234 37.7	07.9	305 32.6	34.3	97 06.9	56.2				Fomalhaut	15 59.8	S 29 46.9			
	11	149 22.5	18 13.6	06.9	249 38.7	08.0	320 34.6	34.5	112 09.4	56.2									
	12	164 25.0	33 13.0	N 18 06.2	264 39.6	S 26 08.1	335 36.6	S 2 34.7	127 12.0	N 11 56.1				Gacrux	172 38.6	S 56 56.7			
	13	179 27.5	48 12.4	05.6	279 40.5	08.1	350 38.6	34.9	142 14.5	56.1				Gienah	176 26.7	S 17 22.4			
	14	194 29.9	63 11.8	04.9	294 41.5	08.2	5 40.6	35.1	157 17.0	56.1				Hadar	149 35.6	S 60 13.9			
D	15	209 32.4	78 11.2	04.3	309 42.4	08.3	20 42.6	35.3	172 19.5	56.0				Hamal	328 37.9	N 23 19.3			
	16	224 34.9	93 10.6	03.6	324 43.4	08.3	35 44.6	35.5	187 22.1	56.0				Kaus Aust.	84 27.4	S 34 24.2			
	17	239 37.3	108 10.0	03.0	339 44.3	08.4	50 46.6	35.7	202 24.6	56.0									
	18	254 39.8	123 09.4	N 18 02.3	354 45.2	S 26 08.4	65 48.6	S 2 36.0	217 27.1	N 11 56.0				Kochab	137 18.5	N 74 16.9			
	19	269 42.2	138 08.8	01.6	9 46.2	08.5	80 50.6	36.2	232 29.6	55.9				Markab	14 10.9	N 15 02.6			
20	20	284 44.7	153 08.2	01.0	24 47.1	08.6	95 52.6	36.4	247 32.2	55.9				Menkar	314 49.5	N 3 58.5			
	21	299 47.2	168 07.6	18 00.3	39 48.1	08.6	110 54.6	36.6	262 34.7	55.9				Menkent	148 46.9	S 36 13.4			
	22	314 49.6	183 07.0	17 59.7	54 49.0	08.7	125 56.6	36.8	277 37.2	55.8				Miaplacidus	221 48.0	S 69 35.3			
	23	329 52.1	198 06.4	59.0	69 49.9	08.7	140 58.6	37.0	292 39.7	55.8									
6	00	344 54.6	213 05.9	N 17 58.3	84 50.9	S 26 08.8	156 00.6	S 2 37.2	307 42.3	N 11 55.8				Mirfak	309 27.7	N 49 45.3			
	01	359 57.0	228 05.3	57.7	99 51.8	08.8	171 02.6	37.4	322 44.8	55.7				Nunki	76 39.0	S 26 20.3			
	02	14 59.5	243 04.7	57.0	114 52.7	08.9	186 04.6	37.6	337 47.3	55.7				Peacock	54 10.4	S 56 50.2			
	03	30 02.0	258 04.1	56.4	129 53.7	09.0	201 06.5	37.8	352 49.9	55.7				Pollux	244 08.2	N 28 06.2			
	04	45 04.4	273 03.5	55.7	144 54.6	09.0	216 08.5	38.0	7 52.4	55.6				Procyon	245 34.4	N 5 18.5			
S	05	60 06.9	288 02.9	55.0	159 55.5	09.1	231 10.5	38.2	22 54.9	55.6									
	06	75 09.4	303 02.3	N 17 54.4	174 56.5	S 26 09.1	246 12.5	S 2 38.4	37 57.4	N 11 55.6				Rasalhague	96 37.0	N 12 34.9			
	07	90 11.8	318 01.7	53.7	189 57.4	09.2	261 14.5	38.6	53 00.0	55.6				Regulus	208 18.8	N 12 07.1			
	08	105 14.3	333 01.1	53.0	204 58.3	09.3	276 16.5	38.8	68 02.5	55.5				Rigel	281 43.8	S 8 13.8			
	09	120 16.7	348 00.5	52.3	219 59.3	09.3	291 18.5	39.0	83 05.0	55.5				Rigel Kent.	140 37.4	S 60 42.8			
T	10	135 19.2	2 59.9	51.7	235 00.2	09.4	306 20.5	39.2	98 07.6	55.5				Sabik	102 50.4	S 15 41.4			

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise				
		G.H.A.	Dec.	G.H.A.	<i>h</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	4	5	6	7
d	h	°	°	°		°		°	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>
4	00	180 12.4	N 7 20.1	270 23.0	9.7	N 27 45.3	3.8	54.7	N 72	///	02 56	04 19				
	01	195 12.6	19.2	284 51.7	9.8	27 49.1	3.8	54.7	N 70	01 13	03 19	04 31				
	02	210 12.8	18.3	299 20.5	9.7	27 52.9	3.5	54.7	68	02 01	03 37	04 40				
	03	225 13.0	17.4	313 49.2	9.7	27 56.4	3.5	54.6	66	02 31	03 50	04 47				21 42
	04	240 13.2	16.4	328 17.9	9.7	27 59.9	3.2	54.6	64	02 52	04 02	04 53				22 57
	05	255 13.4	15.5	342 46.6	9.7	28 03.1	3.2	54.6	62	03 09	04 11	04 59			21 41	23 33
	06	270 13.6	N 7 14.6	357 15.3	9.7	N 28 06.3	3.0	54.6	60	03 23	04 19	05 04	20 00	20 58	22 25	23 59
	07	285 13.8	13.7	11 44.0	9.6	28 09.3	2.9	54.6	N 58	03 34	04 26	05 08	20 40	21 37	22 54	24 19
	08	300 14.0	12.8	26 12.6	9.7	28 12.2	2.7	54.6	56	03 44	04 33	05 11	21 08	22 04	23 16	24 36
	09	315 14.2	11.8	40 41.3	9.6	28 14.9	2.6	54.5	54	03 53	04 38	05 15	21 30	22 25	23 34	24 50
T H U R S D A Y	10	330 14.4	10.9	55 09.9	9.7	28 17.5	2.5	54.5	52	04 00	04 43	05 18	21 48	22 43	23 49	25 02
	11	345 14.6	10.0	69 38.6	9.6	28 20.0	2.3	54.5	50	04 07	04 47	05 20	22 03	22 58	24 03	00 03
	12	0 14.8	N 7 09.1	84 07.2	9.6	N 28 22.3	2.2	54.5	45	04 20	04 56	05 26	22 34	23 28	24 30	00 30
	13	15 15.0	08.1	98 35.8	9.6	28 24.5	2.0	54.5	N 40	04 31	05 04	05 31	22 58	23 52	24 51	00 51
	14	30 15.3	07.2	113 04.4	9.6	28 26.5	1.9	54.5	35	04 39	05 10	05 35	23 18	24 11	00 11	01 09
	15	45 15.5	06.3	127 33.0	9.6	28 28.4	1.7	54.4	30	04 46	05 15	05 39	23 35	24 28	00 28	01 24
	16	60 15.7	05.4	142 01.6	9.6	28 30.1	1.6	54.4	20	04 57	05 23	05 45	24 03	00 03	00 56	01 50
	17	75 15.9	04.4	156 30.2	9.6	28 31.7	1.5	54.4	N 10	05 05	05 29	05 51	24 28	00 28	01 20	02 12
	18	90 16.1	N 7 03.5	170 58.8	9.6	N 28 33.2	1.3	54.4	0	05 10	05 34	05 55	24 51	00 51	01 42	02 33
	19	105 16.3	02.6	185 27.4	9.6	28 34.5	1.2	54.4	S 10	05 15	05 39	06 00	00 21	01 14	02 05	02 53
F R I D A Y	20	120 16.5	01.7	199 56.0	9.6	28 35.7	1.1	54.4	20	05 18	05 43	06 05	00 45	01 38	02 29	03 15
	21	135 16.7	7 00.7	214 24.6	9.6	28 36.8	0.9	54.4	30	05 19	05 47	06 11	01 13	02 07	02 57	03 41
	22	150 16.9	6 59.8	228 53.2	9.6	28 37.7	0.7	54.4	35	05 19	05 49	06 14	01 29	02 24	03 13	03 56
	23	165 17.1	58.9	243 21.8	9.6	28 38.4	0.7	54.3	40	05 19	05 50	06 18	01 48	02 44	03 33	04 13
	00	180 17.3	N 6 58.0	257 50.4	9.6	N 28 39.1	0.4	54.3	45	05 18	05 52	06 22	02 12	03 08	03 56	04 34
	01	195 17.5	57.0	272 19.0	9.7	28 39.5	0.4	54.3	S 50	05 17	05 54	06 27	02 42	03 40	04 26	05 00
	02	210 17.7	56.1	286 47.7	9.6	28 39.9	0.2	54.3	52	05 16	05 55	06 29	02 57	03 55	04 40	05 12
	03	225 17.9	55.2	301 16.3	9.7	28 40.1	0.1	54.3	54	05 15	05 56	06 31	03 14	04 14	04 57	05 27
	04	240 18.1	54.3	315 45.0	9.6	28 40.2	0.1	54.3	56	05 14	05 57	06 34	03 35	04 36	05 18	05 44
	05	255 18.4	53.3	330 13.6	9.7	28 40.1	0.2	54.3	58	05 12	05 58	06 37	04 02	05 05	05 44	06 04
S A T U R D A Y	06	270 18.6	N 6 52.4	344 42.3	9.7	N 28 39.9	0.4	54.3	S 60	05 10	05 59	06 40	04 39	05 48	06 19	06 29
	07	285 18.8	51.5	359 11.0	9.6	28 39.5	0.5	54.3	Lat.	Sun-set	Twilight	Moonset				
	08	300 19.0	50.6	13 39.6	9.8	28 39.0	0.6	54.3			Civil	Naut.	4	5	6	7
	09	315 19.2	49.6	28 08.4	9.7	28 38.4	0.8	54.3								
	10	330 19.4	48.7	42 37.1	9.7	28 37.6	0.9	54.2								
	11	345 19.6	47.8	57 05.8	9.8	28 36.7	1.1	54.2								
	12	0 19.8	N 6 46.8	71 34.6	9.8	N 28 35.6	1.1	54.2	N 72	19 35	20 56	///				
	13	15 20.0	45.9	86 03.4	9.8	28 34.5	1.4	54.2	N 70	19 24	20 34	22 33				
	14	30 20.2	45.0	100 32.2	9.8	28 33.1	1.4	54.2	68	19 15	20 18	21 50				
	15	45 20.4	44.1	115 01.0	9.8	28 31.7	1.6	54.2	66	19 08	20 04	21 22				20 48
S U N D A Y	16	60 20.6	43.1	129 29.8	9.9	28 30.1	1.8	54.2	64	19 02	19 53	21 02				19 31
	17	75 20.8	42.2	143 58.7	9.9	28 28.3	1.9	54.2	62	18 57	19 44	20 45			19 06	18 55
	18	90 21.1	N 6 41.3	158 27.6	9.9	N 28 26.4	2.0	54.2	60	18 52	19 36	20 32	17 13	18 03	18 22	18 28
	19	105 21.3	40.3	172 56.5	9.9	28 24.4	2.1	54.2	N 58	18 48	19 29	20 21	16 33	17 24	17 53	18 08
	20	120 21.5	39.4	187 25.4	10.0	28 22.3	2.3	54.2	56	18 45	19 23	20 11	16 05	16 57	17 30	17 51
	21	135 21.7	38.5	201 54.4	10.0	28 20.0	2.4	54.2	54	18 42	19 18	20 03	15 44	16 35	17 12	17 36
	22	150 21.9	37.6	216 23.4	10.0	28 17.6	2.6	54.2	52	18 39	19 13	19 56	15 26	16 18	16 56	17 23
	23	165 22.1	36.6	230 52.4	10.1	28 15.0	2.7	54.2	50	18 36	19 09	19 49	15 10	16 03	16 42	17 12
	00	180 22.3	N 6 35.7	245 21.5	10.1	N 28 12.3	2.8	54.2	45	18 30	19 00	19 36	14 40	15 32	16 15	16 48
	01	195 22.5	34.8	259 50.6	10.1	28 09.5	3.0	54.2	N 40	18 26	18 53	19 26	14 16	15 08	15 53	16 29
02	210 22.7	33.8	274 19.7	10.2	28 06.5	3.1	54.2	35	18 22	18 47	19 17	13 56	14 48	15 34	16 14	
03	225 22.9	32.9	288 48.9	10.2	28 03.4	3.2	54.1	30	18 18	18 42	19 11	13 39	14 32	15 19	16 00	
04	240 23.1	32.0	303 18.1	10.2	28 00.2	3.4	54.1	20	18 12	18 34	19 00	13 11	14 03	14 52	15 36	
05	255 23.4	31.0	317 47.3	10.3	27 56.8	3.5	54.1	N 10	18 07	18 28	18 53	12 47	13 39	14 29	15 16	
06	270 23.6	N 6 30.1	332 16.6	10.3	N 27 53.3	3.6	54.1	0	18 02	18 23	18 47	12 24	13 16	14 07	14 56	
07	285 23.8	29.2	346 45.9	10.3	27 49.7	3.8	54.1	S 10	17 57	18 18	18 43	12 01	12 53	13 45	14 37	
08	300 24.0	28.2	1 15.2	10.4	27 45.9	3.9	54.1	20	17 52	18 15	18 40	11 37	12 28	13 22	14 16	
09	315 24.2	27.3	15 44.6	10.4	27 42.0	4.0	54.1	30	17 47	18 11	18 39	11 09	12 00	12 55	13 52	
10	330 24.4	26.4	30 14.0	10.5	27 38.0	4.2	54.1	35	17 44	18 09	18 39	10 52	11 43	12 39	13 38	
11	345 24.6	25.5	44 43.5	10.5	27 33.8	4.3	54.1	40	17 40	18 08	18 39	10 32	11 23	12 20	13 21	
12	0 24.8	N 6 24.5	59 13.0	10.5	N 27 29.5	4.4	54.1	45	17 36	18 06	18 40	10 09	10 59	11 57	13 01	
13	15 25.0	23.6	73 42.5	10.6	27 25.1	4.5	54.1	S 50	17 32	18 04	18 41	09 38	10 27	11 28	12 36	
14	30 25.2	22.7	88 12.1	10.6	27 20.6	4.7	54.1	52	17 30	18 03	18 42	09 23	10 12	11 13	12 24	
15	45 25.5	21.7	102 41.7	10.7	27 15.9	4.8	54.1	54	17 27	18 03	18 44	09 06	09 53	10 56	12 10	
16	60 25.7	20.8	117 11.4	10.7	27 11.1	4.9	54.1	56	17 25	18 02	18 45	08 44	09 31	10 36	11 53	
17	75 25.9	19.9	131 41.1	10.7	27 06.2	5.1	54.1	58	17 22	18 01	18 46	08 17	09 02	10 11	11 34	
18	90 26.1	N 6 18.9	146 10.8	10.8	N 27 01.1	5.2	54.1	S 60	17 18	18 00	18 48	07 39	08 19	09 35	11 09	
19	105 26.3	18.0	160 40.6	10.9	26 55.9	5.3	54.1	Day	SUN		MOON					
20	120 26.5	17.1	175 10.5	10.9	26 50.6	5.4	54.1		Eqn. of Time	Mer. Pass.	Mer. Upper	Pass. Lower	Age	Phase		
21	135 26.7	16.1	189 40.4	10.9	26 45.2	5.6	54.1		00h							

[illegible]

G.M.T.		SUN		MOON						Lat.	Twilight		Sun-rise	Moonrise																
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.	Naut.		Civil	7		8	9	10														
d	h	<i>s</i>	<i>m</i>	<i>s</i>	<i>m</i>	<i>s</i>	<i>m</i>	<i>s</i>	<i>m</i>	<i>s</i>	<i>m</i>	<i>s</i>	<i>s</i>	<i>m</i>	<i>s</i>	<i>s</i>	<i>m</i>	<i>s</i>	<i>s</i>	<i>m</i>	<i>s</i>	<i>s</i>	<i>m</i>	<i>s</i>	<i>s</i>	<i>m</i>	<i>s</i>	<i>s</i>		
7	00	180	27.4	N	6	13.3	233	10.4	11.1	N	26	28.2	6.0	54.1	N	70	01	45	03	34	04	43	□	22	29	25	46	01	46	
	01	195	27.6		12.4	247	40.5	11.1		26	22.2	6.0	54.1		68	02	21	03	49	04	50	□	23	53	26	09	02	09		
	02	210	27.8		11.5	262	10.6	11.2		26	16.2	6.2	54.2		66	02	46	04	01	04	57	21	42	24	30	00	30	02	27	
	03	225	28.0		10.5	276	40.8	11.3		26	10.0	6.3	54.2		64	03	05	04	11	05	02	22	57	24	56	00	56	02	42	
	04	240	28.2		09.6	291	11.1	11.3		26	03.7	6.4	54.2		62	03	20	04	20	05	07	23	33	25	17	01	17	02	54	
	05	255	28.4		08.6	305	41.4	11.3		25	57.3	6.5	54.2		60	03	32	04	27	05	11	23	59	25	33	01	33	03	04	
	06	270	28.6	N	6	07.7	320	11.7	11.4	N	25	50.8	6.7	54.2	N	58	03	42	04	33	05	14	24	19	00	19	01	47	03	13
	07	285	28.8		06.8	334	42.1	11.5		25	44.1	6.8	54.2		56	03	51	04	39	05	17	24	36	00	36	01	59	03	21	
	08	300	29.0		05.8	349	12.6	11.5		25	37.3	6.8	54.2		54	03	59	04	44	05	20	24	50	00	50	02	09	03	28	
	09	315	29.3		04.9	3	43.1	11.5		25	30.5	7.0	54.2		52	04	06	04	48	05	22	25	02	01	02	02	18	03	34	
SUNDAY	10	330	29.5		04.0	18	13.6	11.7		25	23.5	7.2	54.2		50	04	12	04	52	05	25	00	03	01	13	02	26	03	39	
	11	345	29.7		03.0	32	44.3	11.6		25	16.3	7.2	54.2		45	04	24	05	00	05	30	00	30	01	36	02	43	03	51	
	12	0	29.9	N	6	02.1	47	14.9	11.7	N	25	09.1	7.4	54.2	N	40	04	34	05	06	05	34	00	51	01	54	02	57	04	01
	13	15	30.1		01.2	61	45.6	11.8		25	01.7	7.4	54.2		35	04	42	05	12	05	37	01	09	02	09	03	09	04	09	
	14	30	30.3		00.2	76	16.4	11.9		24	54.3	7.6	54.2		30	04	48	05	16	05	41	01	24	02	22	03	20	04	17	
	15	45	30.5		5 59.3	90	47.3	11.8		24	46.7	7.7	54.2		20	04	58	05	24	05	46	01	50	02	44	03	37	04	29	
	16	60	30.7		58.3	105	18.1	12.0		24	39.0	7.8	54.2	N	10	05	05	05	29	05	50	02	12	03	03	53	04	53	04	40
	17	75	30.9		57.4	119	49.1	12.0		24	31.2	7.9	54.2	0	05	10	05	33	05	54	02	33	03	21	04	07	04	51		
	18	90	31.2	N	5	56.5	134	20.1	12.0	N	24	23.3	8.0	54.2	S	10	05	13	05	37	05	58	02	53	03	39	04	21	05	01
	19	105	31.4		55.5	148	51.1	12.1		24	15.3	8.2	54.2		20	05	15	05	41	06	03	03	15	03	58	04	36	05	12	
MONDAY	20	120	31.6		54.6	163	22.2	12.2		24	07.1	8.2	54.2		30	05	16	05	43	06	07	03	41	04	19	04	53	05	24	
	21	135	31.8		53.6	177	53.4	12.2		23	58.9	8.4	54.2		35	05	15	05	45	06	10	03	56	04	32	05	03	05	31	
	22	150	32.0		52.7	192	24.6	12.3		23	50.5	8.4	54.3		40	05	15	05	46	06	13	04	13	04	47	05	15	05	39	
	23	165	32.2		51.8	206	55.9	12.3		23	42.1	8.6	54.3		45	05	13	05	47	06	16	04	34	05	04	05	28	05	48	
	00	180	32.4	N	5	50.8	221	27.2	12.4	N	23	33.5	8.7	54.3	S	50	05	11	05	48	06	20	05	00	05	25	05	44	06	00
	01	195	32.7		49.9	235	58.6	12.5		23	24.8	8.8	54.3		52	05	09	05	48	06	22	05	12	05	35	05	52	06	05	
	02	210	32.9		49.0	250	30.1	12.5		23	16.0	8.9	54.3		54	05	08	05	49	06	24	05	27	05	47	06	00	06	11	
	03	225	33.1		48.0	265	01.6	12.5		23	07.1	9.0	54.3		56	05	06	05	49	06	26	05	44	05	59	06	10	06	17	
	04	240	33.3		47.1	279	33.1	12.7		22	58.1	9.1	54.3		58	05	04	05	49	06	29	06	04	06	14	06	20	06	24	
	05	255	33.5		46.1	294	04.8	12.6		22	49.0	9.2	54.3	S	60	05	02	05	50	06	31	06	29	06	32	06	33	06	32	
TUESDAY	06	270	33.7	N	5	45.2	308	36.4	12.8	N	22	39.8	9.3	54.3	Lat. Sun-set Twilight Moonset				Civil Naut. 7 8 9 10											
	07	285	33.9		44.3	323	08.2	12.7		22	30.5	9.4	54.3	o h m h m h m h m																
	08	300	34.1		43.3	337	39.9	12.9		22	21.1	9.5	54.3	N	72	19	19	20	36	23	03	□	□	20	30	19	33			
	09	315	34.4		42.4	352	11.8	12.9		22	11.6	9.6	54.3	N	70	19	10	20	18	22	02	□	□	21	39	19	55	19	17	
	10	330	34.6		41.4	6	43.7	12.9		22	02.0	9.7	54.4	68	19	03	20	03	21	29	□	□	20	15	19	30	19	04		
	11	345	34.8		40.5	21	15.6	13.0		21	52.3	9.7	54.4	66	18	56	19	51	21	05	20	48	19	36	19	11	18	53		
	12	0	35.0	N	5	39.6	35	47.6	13.1	N	21	42.6	9.9	54.4	64	18	52	19	42	20	47	19	31	19	09	18	55	18	44	
	13	15	35.2		38.6	50	19.7	13.1		21	32.7	10.0	54.4	62	18	47	19	34	20	33	18	55	18	48	18	42	18	36		
	14	30	35.4		37.7	64	51.8	13.2		21	22.7	10.1	54.4	60	18	43	19	27	20	21	18	28	18	30	18	30	18	29		
	15	45	35.6		36.7	79	24.0	13.2		21	12.6	10.2	54.4	N	58	18	40	19	21	20	11	18	08	18	16	18	21	18	23	
WEDNESDAY	16	60	35.9		35.8	93	56.2	13.3		21	02.4	10.3	54.4	56	18	37	19	15	20	02	17	51	18	03	18	12	18	18		
	17	75	36.1		34.8	108	28.5	13.3		20	52.1	10.3	54.4	54	18	34	19	10	19	55	17	36	17	52	18	04	18	13		
	18	90	36.3	N	5	33.9	123	00.8	13.4	N	20	41.8	10.5	54.4	52	18	32	19	06	19	48	17	23	17	43	17	57	18	09	
	19	105	36.5		33.0	137	33.2	13.5		20	31.3	10.6	54.5	50	18	30	19	02	19	42	17	12	17	34	17	51	18	05		
	20	120	36.7		32.0	152	05.7	13.5		20	20.7	10.6	54.5	45	18	25	18	55	19	30	16	48	17	15	17	37	17	56		
	21	135	36.9		31.1	166	38.2	13.5		20	10.1	10.7	54.5	N	40	18	21	18	48	19	21	16	29	17	00	17	26	17	49	
	22	150	37.1		30.1	181	10.7	13.6		19	59.4	10.9	54.5	35	18	17	18	43	19	13	16	14	16	47	17	17	17	43		
	23	165	37.4		29.2	195	43.3	13.7		19	48.5	10.9	54.5	30	18	14	18	38	19	07	16	00	16	36	17	08	17	37		
	00	180	37.6	N	5	28.3	210	16.0	13.7	N	19	37.6	11.0	54.5	20	18	09	18	31	18	57	15								

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise				
		G.H.A.	Dec.	G.H.A.	φ	Dec.	d		H.P.	Naut.		Civil	10	11	12	13
d	h	$^{\circ}$	$'$	$^{\circ}$	$'$	$^{\circ}$	$'$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	
1000 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 WEDNESDAY	180	42.7	N	5	05.6	199	34.0	14.8	N	14	51.4	12.9	54.9	N	70	
	01	195	43.0		04.6	214	07.8	14.8	14	38.5	12.9	54.9	68	02	39	
	02	210	43.2		03.7	228	41.6	14.9	14	25.6	13.0	54.9	66	03	00	
	03	225	43.4		02.7	243	15.5	14.9	14	12.6	13.0	54.9	64	03	16	
	04	240	43.6		01.8	257	49.4	14.9	13	59.6	13.2	54.9	62	03	30	
	05	255	43.8	5	00.8	272	23.3	15.0	13	46.4	13.1	54.9	60	03	41	
	06	270	44.0	N	4	59.9	286	57.3	15.0	N	13	33.3	13.3	55.0	N	58
	07	285	44.3		58.9	301	31.3	15.0	13	20.0	13.3	55.0	56	03	58	
	08	300	44.5		58.0	316	05.3	15.1	13	06.7	13.3	55.0	54	04	05	
	09	315	44.7		57.0	330	39.4	15.1	12	53.4	13.5	55.0	52	04	12	
	10	330	44.9		56.1	345	13.5	15.1	12	39.9	13.4	55.0	50	04	17	
	11	345	45.1		55.2	359	47.6	15.2	12	26.5	13.6	55.0	45	04	28	
	12		0 45.3	N	4	54.2	14	21.8	15.2	N	12	12.9	13.6	55.1	N	40
	13		15 45.6		53.3	28	56.0	15.2	11	59.3	13.6	55.1	35	04	44	
	14		30 45.8		52.3	43	30.2	15.2	11	45.7	13.8	55.1	30	04	50	
	15		45 46.0		51.4	58	04.4	15.3	11	31.9	13.7	55.1	20	04	58	
	16		60 46.2		50.4	72	38.7	15.3	11	18.2	13.8	55.1	N	10	05	
	17		75 46.4		49.5	87	13.0	15.3	11	04.4	13.9	55.2	0	05	09	
	18		90 46.6	N	4	48.5	101	47.3	15.4	N	10	50.5	13.9	55.2	S	10
	19		105 46.9		47.6	116	21.7	15.4	10	36.6	14.0	55.2	20	05	12	
	20		120 47.1		46.6	130	56.1	15.3	10	22.6	14.0	55.2	30	05	12	
	21		135 47.3		45.7	145	30.4	15.5	10	08.6	14.1	55.2	35	05	11	
	22		150 47.5		44.7	160	04.9	15.4	9	54.5	14.1	55.2	40	05	10	
	23		165 47.7		43.8	174	39.3	15.5	9	40.4	14.2	55.3	45	05	07	
1100 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 THURSDAY	180	47.9	N	4	42.8	189	13.8	15.4	N	9	26.2	14.2	55.3	S	50	
	01	195	48.2		41.9	203	48.2	15.5	9	12.0	14.3	55.3	52	05	02	
	02	210	48.4		40.9	218	22.7	15.5	8	57.7	14.3	55.3	54	05	00	
	03	225	48.6		40.0	232	57.2	15.6	8	43.4	14.4	55.3	56	04	58	
	04	240	48.8		39.0	247	31.8	15.5	8	29.0	14.4	55.4	58	04	56	
	05	255	49.0		38.1	262	06.3	15.6	8	14.6	14.4	55.4	S	60	04	
	06	270	49.2	N	4	37.1	276	40.9	15.5	N	8	00.2	14.5	55.4		
	07	285	49.5		36.2	291	15.4	15.6	7	45.7	14.5	55.4				
	08	300	49.7		35.2	305	50.0	15.6	7	31.2	14.6	55.4				
	09	315	49.9		34.3	320	24.6	15.6	7	16.6	14.6	55.5				
	10	330	50.1		33.3	334	59.2	15.6	7	02.0	14.6	55.5				
	11	345	50.3		32.4	349	33.8	15.6	6	47.4	14.7	55.5				
	12		0 50.6	N	4	31.4	4	08.4	15.7	N	6	32.7	14.7	55.5	N	70
	13		15 50.8		30.4	18	43.1	15.6	6	18.0	14.7	55.5	68	18	50	
	14		30 51.0		29.5	33	17.7	15.6	6	03.3	14.8	55.6	66	18	45	
	15		45 51.2		28.5	47	52.3	15.7	5	48.5	14.8	55.6	64	18	41	
	16		60 51.4		27.6	62	27.0	15.6	5	33.7	14.9	55.6	62	18	37	
	17		75 51.6		26.6	77	01.6	15.7	5	18.8	14.9	55.6	60	18	34	
	18		90 51.9	N	4	25.7	An Annular Eclipse								N	58
	19		105 52.1		24.7									56	18	
	20		120 52.3		23.8	of the Sun occurs on								54	18	
	21		135 52.5		22.8	this date. See page 5.								52	18	
	22		150 52.7		21.9									50	18	
	23		165 53.0		20.9									45	18	
1200 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 FRIDAY	180	53.2	N	4	20.0	179	04.2	15.6	N	3	34.1	15.1	55.8	N	40	
	01	195	53.4		19.0	193	38.8	15.7	3	19.0	15.1	55.8	35	18	13	
	02	210	53.6		18.1	208	13.5	15.6	3	03.9	15.1	55.8	30	18	11	
	03	225	53.8		17.1	222	48.1	15.6	2	48.8	15.1	55.8	20	18	07	
	04	240	54.0		16.2	237	22.7	15.6	2	33.7	15.2	55.8	N	10	18	
	05	255	54.3		15.2	251	57.3	15.6	2	18.5	15.2	55.9	0	18	00	
	06	270	54.5	N	4	14.2	266	31.9	15.6	N	2	03.3	15.2	55.9	S	10
	07	285	54.7		13.3	281	06.5	15.6	1	48.1	15.2	55.9	20	17	54	
	08	300	54.9		12.3	295	41.1	15.5	1	32.9	15.2	55.9	30	17	50	
	09	315	55.1		11.4	310	15.6	15.6	1	17.7	15.3	55.9	35	17	48	
	10	330	55.4		10.4	324	50.2	15.5	1	02.4	15.2	56.0	40	17	46	
	11	345	55.6		09.5	339	24.7	15.6	0	47.2	15.3	56.0	45	17	44	
	12		0 55.8	N	4	08.5	353	59.3	15.5	N	0	31.9	15.3	56.0	S	50
	13		15 56.0		07.6	8	33.8	15.4	0	16.6	15.3	56.0	52	17	39	
	14		30 56.2		06.6	23	08.2	15.5	N	0	01.3	15.3	56.0	54	17	38
	15		45 56.5		05.7	37	42.7	15.4	S	0	14.0	15.4	56.1	56	17	36
	16		60 56.7		04.7	52	17.1	15.5	0	29.4	15.3	56.1	58	17	34	
	17		75 56.9		03.7	66	51.6	15.4	0	44.7	15.3	56.1	S	60	17	
	18		90 57.1	N	4	02.8	81	26.0	15.3	S	1	00.0	15.4	56.1		
	19		105 57.3		01.8	96	00.3	15.4	1	15.4	15.3	56.1				
	20		120 57.6		00.9	110	34.7	15.3	1	30.7	15.4	56.2				
	21		135 57.8		3 59.9	125	09.0	15.3	1	46.1	15.4	56.2				
	22		150 58.0		59.0	139	43.3	15.3	2	01.5	15.3	56.2				
	23		165 58.2		58.0	154	17.6	15.2	2	16.8	15.4	56.2				
S.D. 15.9 d 1.0 S.D. 15.0 15.1 15.3																
Day		SUN			MOON			Mer. Pass.	Mer. Upper		Mer. Lower		Age	Phase		
		Eqn. of Time	00 ^h	12 ^h	Pass.	Pass.	Pass.									
		m	s	m	s	m	s	h	m	h	m	d				
10		02 51	03 01	11 57	11 01	23 22	28									
11		03 11	03 22	11 57	11 43	24 04	29									
12		03 32	03 43	11 56	12 25	00 04	01									

G.M.T.	ARIES			VENUS -3.4			MARS -0.2			JUPITER -1.2			SATURN +0.3			STARS		
	G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.				
d h																		
13 00	351 48.5	211 29.5	N 15 54.8	87 19.9	S 26 15.2	161 34.8	S 3 11.7	314 49.2	N 11 49.9	Acamar	315 43.0	S 40 25.1						
	6 51.0	226 28.9	54.0	102 20.8	15.3	176 36.7	11.9	329 51.8	49.9	Achernar	335 50.4	S 57 23.1						
	21 53.5	241 28.4	53.2	117 21.6	15.3	191 38.7	12.1	344 54.3	49.8	Acruv	173 47.3	S 62 55.9						
	36 55.9	256 27.8	52.4	132 22.5	15.3	206 40.7	12.3	359 56.9	49.8	Adhara	255 38.6	S 28 55.4						
	51 58.4	271 27.3	51.6	147 23.3	15.3	221 42.7	12.5	14 59.4	49.7	Aldebaran	291 27.2	N 16 27.2						
05	67 00.9	286 26.7	50.8	162 24.2	15.3	236 44.7	12.7	30 02.0	49.7									
06	82 03.3	301 26.2	N 15 50.0	177 25.0	S 26 15.3	251 46.7	S 3 12.9	45 04.6	N 11 49.7	Alioth	166 49.8	N 56 07.6						
07	97 05.8	316 25.6	49.2	192 25.8	15.4	266 48.7	13.1	60 07.1	49.6	Alkaid	153 25.0	N 49 28.0						
08	112 08.2	331 25.1	48.4	207 26.7	15.4	281 50.6	13.4	75 09.7	49.6	Al Na'ir	28 24.4	S 47 06.5						
09	127 10.7	346 24.5	47.6	222 27.5	15.4	296 52.6	13.6	90 12.2	49.5	Alnilam	276 19.9	S 1 12.9						
10	142 13.2	1 24.0	46.8	237 28.3	15.4	311 54.6	13.8	105 14.8	49.5	Alphard	218 28.8	S 8 31.3						
11	157 15.6	16 23.4	45.9	252 29.2	15.4	326 56.6	14.0	120 17.3	49.5									
12	172 18.1	31 22.9	N 15 45.1	267 30.0	S 26 15.4	341 58.6	S 3 14.2	135 19.9	N 11 49.4	Alphecca	126 39.0	N 26 49.0						
13	187 20.6	46 22.3	44.3	282 30.9	15.4	357 00.6	14.4	150 22.5	49.4	Alpheratz	358 17.4	N 28 55.5						
14	202 23.0	61 21.8	43.5	297 31.7	15.5	12 02.5	14.6	165 25.0	49.3	Altair	62 40.2	N 8 47.3						
15	217 25.5	76 21.2	42.7	312 32.5	15.5	27 04.5	14.8	180 27.6	49.3	Ankaa	353 47.6	S 42 28.0						
16	232 28.0	91 20.7	41.9	327 33.4	15.5	42 06.5	15.0	195 30.1	49.3	Antares	113 06.9	S 26 22.1						
17	247 30.4	106 20.1	41.0	342 34.2	15.5	57 08.5	15.2	210 32.7	49.2									
18	262 32.9	121 19.6	N 15 40.2	357 35.0	S 26 15.5	72 10.5	S 3 15.4	225 35.2	N 11 49.2	Arcturus	146 26.0	N 19 20.5						
19	277 35.4	136 19.1	39.4	12 35.9	15.5	87 12.5	15.6	240 37.8	49.2	Atria	108 38.6	S 68 58.9						
20	292 37.8	151 18.5	38.6	27 36.7	15.5	102 14.4	15.8	255 40.4	49.1	Avior	234 32.2	S 59 24.3						
21	307 40.3	166 18.0	37.8	42 37.5	15.5	117 16.4	16.0	270 42.9	49.1	Bellatrix	279 07.4	N 6 19.7						
22	322 42.7	181 17.4	36.9	57 38.4	15.6	132 18.4	16.2	285 45.5	49.0	Betelgeuse	271 37.0	N 7 24.4						
23	337 45.2	196 16.9	36.1	72 39.2	15.6	147 20.4	16.5	300 48.0	49.0									
14 00	352 47.7	211 16.3	N 15 35.3	87 40.0	S 26 15.6	162 22.4	S 3 16.7	315 50.6	N 11 49.0	Canopus	264 11.0	S 52 40.2						
	7 50.1	226 15.8	34.5	102 40.8	15.6	177 24.3	16.9	330 53.2	48.9	Capella	281 23.2	N 45 58.1						
	22 52.6	241 15.2	33.7	117 41.7	15.6	192 26.3	17.1	345 55.7	48.9	Deneb	49 53.8	N 45 10.4						
	37 55.1	256 14.7	32.8	132 42.5	15.6	207 28.3	17.3	0 58.3	48.8	Denebola	183 07.5	N 14 44.6						
	52 57.5	271 14.2	32.0	147 43.3	15.6	222 30.3	17.5	16 00.8	48.8	Diphda	349 28.5	S 18 08.9						
05	68 00.0	286 13.6	31.2	162 44.2	15.6	237 32.3	17.7	31 03.4	48.8									
06	83 02.5	301 13.1	N 15 30.3	177 45.0	S 26 15.6	252 34.3	S 3 17.9	46 06.0	N 11 48.7	Dubhe	194 32.3	N 61 54.9						
07	98 04.9	316 12.5	29.5	192 45.8	15.6	267 36.2	18.1	61 08.5	48.7	Elnath	278 54.3	N 26 35.1						
08	113 07.4	331 12.0	28.7	207 46.6	15.6	282 38.2	18.3	76 11.1	48.6	Eltanin	91 01.4	N 51 29.7						
09	128 09.9	346 11.5	27.9	222 47.5	15.7	297 40.2	18.5	91 13.6	48.6	Enif	34 19.2	N 9 44.2						
10	143 12.3	1 10.9	27.0	237 48.3	15.7	312 42.2	18.7	106 16.2	48.5	Fomalhaut	15 59.8	S 29 46.9						
11	158 14.8	16 10.4	26.2	252 49.1	15.7	327 44.2	18.9	121 18.8	48.5									
12	173 17.2	31 09.8	N 15 25.4	267 49.9	S 26 15.7	342 46.2	S 3 19.2	136 21.3	N 11 48.5	Gacrux	172 38.6	S 56 56.6						
13	188 19.7	46 09.3	24.5	282 50.8	15.7	357 48.1	19.4	151 23.9	48.4	Gienah	176 26.7	S 17 22.3						
14	203 22.2	61 08.8	23.7	297 51.6	15.7	12 50.1	19.6	166 26.4	48.4	Hadar	149 35.6	S 60 13.9						
15	218 24.6	76 08.2	22.9	312 52.4	15.7	27 52.1	19.8	181 29.0	48.3	Hamal	328 37.8	N 23 19.3						
16	233 27.1	91 07.7	22.0	327 53.2	15.7	42 54.1	20.0	196 31.6	48.3	Kaus Aust.	84 27.4	S 34 24.2						
17	248 29.6	106 07.1	21.2	342 54.1	15.7	57 56.1	20.2	211 34.1	48.3									
18	263 32.0	121 06.6	N 15 20.4	357 54.9	S 26 15.7	72 58.0	S 3 20.4	226 36.7	N 11 48.2	Kochab	137 18.7	N 74 16.9						
19	278 34.5	136 06.1	19.5	12 55.7	15.7	88 00.0	20.6	241 39.3	48.2	Markab	14 10.9	N 15 02.6						
20	293 37.0	151 05.5	18.7	27 56.5	15.7	103 02.0	20.8	256 41.8	48.1	Menkar	314 49.4	N 3 58.6						
21	308 39.4	166 05.0	17.8	42 57.3	15.7	118 04.0	21.0	271 44.4	48.1	Menkent	148 47.0	S 36 13.4						
22	323 41.9	181 04.5	17.0	57 58.2	15.7	133 06.0	21.2	286 46.9	48.1	Miaplacidus	221 47.9	S 69 35.2						
23	338 44.4	196 03.9	16.2	72 59.0	15.7	148 07.9	21.4	301 49.5	48.0									
15 00	353 46.8	211 03.4	N 15 15.3	87 59.8	S 26 15.7	163 09.9	S 3 21.6	316 52.1	N 11 48.0	Mirfak	309 27.6	N 49 45.3						
	8 49.3	226 02.8	14.5	103 00.6	15.7	178 11.9	21.9	331 54.6	47.9	Nunki	76 39.0	S 26 20.3						
	23 51.7	241 02.3	13.6	118 01.4	15.7	193 13.9	22.1	346 57.2	47.9	Peacock	54 10.5	S 56 50.2						
	38 54.2	256 01.8	12.8	133 02.3	15.8	208 15.9	22.3	1 59.8	47.8	Pollux	244 08.2	N 28 06.2						
	53 56.7	271 01.2	11.9	148 03.1	15.8	223 17.9	22.5	17 02.3	47.8	Procyon	245 34.4	N 5 18.5						
04	68 59.1	286 00.7	11.1	163 03.9	15.8	238 19.8	22.7	32 04.9	47.8									
06	84 01.6	301 00.2	N 15 10.3	178 04.7	S 26 15.8	253 21.8	S 3 22.9	47 07.4	N 11 47.7	Rasalhague	96 37.0	N 12 34.9						
07	99 04.1	315 59.6	09.4	193 05.5	15.8	268 23.8	23.1	62 10.0	47.7	Regulus	208 18.8	N 12 07.1						
08	114 06.5	330 59.1	08.6	208 06.3	15.8	283 25.8	23.3	77 12.6	47.6	Rigel	281 43.7	S 8 13.8						
09	129 09.0	345 58.6	07.7	223 07.2	15.8	298 27.8	23.5	92 15.1	47.6	Rigel Kent.	140 37.5	S 60 42.8						
10	144 11.5	0 58.0	06.9	238 08.0	15.8	313 29.7	23.7	107 17.7	47.6	Sabik	102 50.4	S 15 41.4						
11	159 13.9	15 57.5	06.0	253 08.8	15.8	328 31.7	23.9	122 20.3	47.5									
12	174 16.4	30 57.0	N 15 05.2	268 09.6	S 26 15.8	343 33.7	S 3 24.1	137 22.8	N 11 47.5	Schedar	350 18.0	N 56 22.3						
13	189 18.8	45 56.4	04.3	283 10.4	15.8	358 35.7	24.3	152 25.4	47.4	Shaula	97 06.7	S 37 05.2						
14	204 21.3	60 55.9	03.5	298 11.2	15.8	13 37.7	24.6	167 28.0	47.4	Sirius	259 02.9	S 16 40.1						
15	219 23.8	75 55.4	02.6	313 12.0	15.8	28 39.6	24.8	182 30.5	47.3	Spica	159 06.3	S 11 00.2						
16	234 26.2	90 54.8	01.8	328 12.8	15.8	43 41.6	25.0	197 33.1	47.3	Suhail	223 17.2	S 43 18.3						
17	249 28.7	105 54.3	00.9	343 13.6	15.8	58 43.6	25.2	212 35.7	47.3									
18	264 31.2	120 53.8	N 15 00.0	358 14.5	S 26 15.8	73 45.6	S 3 25.4	227 38.2	N 11 47.2	Vega	81 01.2	N 38 45.4						
19	279 33.6	135 53.3	14 59.2	13 15.3	15.8	88 47.6	25.6	242 40.8	47.2	Zuben'ubi	137 42.2	S 15 55.1						
20	294 36.1	150 52.7	58.3	28 16.1	15.8	103 49.5	25.8	257 43.4	47.1									
21	309 38.6	165 52.2	57.5	43 16.9	15.8	118 51.5	26.0	272 45.9	47.1									
22	324 41.0	180 51.7	56.6	58 17.7	15.8	133 53.5	26.2	287 48.5	47.0	Venus	218 28.6	h 9 55						
23	339 43.5	195 51.1	55.8	73 18.5	15.8	148 55.5	26.4	302 51.1	47.0	Mars	94 52.3	18 08						
										Jupiter	169 34.7	13 09						
										Saturn	323 02.9	2 56						
Mer. Pass.	0 28.7	v -0.5	d 0.8	v 0.8	d 0.0	v 2.0	d 0.2	v 2.6	d 0.0									

G.M.T.	SUN		MOON						Lat.	Twilight		Sun-rise	Moonrise					
	G.H.A.		Dec.	G.H.A.	ψ	Dec.	d	H.P.		Naut.	Civil		13	14	15	16		
	d	h																
13 00	180	58.4 N	3 57.0	168	51.8	15.2	S	2 32.2	15.3	56.2	N 72	01 56	03 48	05 01	07 57	10 17	14 02	
01	195	58.7	56.1	183	26.0	15.2		2 47.5	15.4	56.3	N 70	02 31	04 02	05 07	07 50	09 57	12 35	
02	210	58.9	55.1	198	00.2	15.1		3 02.9	15.4	56.3	68	02 55	04 13	05 12	07 44	09 41	11 56	
03	225	59.1	54.2	212	34.3	15.1		3 18.3	15.3	56.3	66	03 13	04 23	05 16	07 40	09 29	11 30	14 04
04	240	59.3	53.2	227	08.4	15.1		3 33.6	15.4	56.3	64	03 28	04 30	05 19	07 36	09 18	11 10	13 18
05	255	59.5	52.3	241	42.5	15.0		3 49.0	15.4	56.3	62	03 40	04 37	05 22	07 32	09 09	10 53	12 48
06	270	59.8	N 3 51.3	256	16.5	15.0	S	4 04.4	15.3	56.4	60	03 50	04 42	05 25	07 29	09 02	10 40	12 26
07	286	00.0	50.4	270	50.5	15.0		4 19.7	15.3	56.4	N 58	03 58	04 47	05 27	07 27	08 55	10 28	12 07
08	301	00.2	49.4	285	24.5	14.9		4 35.0	15.4	56.4	56	04 05	04 51	05 29	07 25	08 49	10 19	11 52
09	316	00.4	48.4	299	58.4	14.9		4 50.4	15.3	56.4	54	04 12	04 55	05 31	07 23	08 44	10 10	11 39
10	331	00.6	47.5	314	32.3	14.8		5 05.7	15.3	56.4	52	04 17	04 58	05 32	07 21	08 40	10 02	11 28
11	346	00.9	46.5	329	06.1	14.8		5 21.0	15.3	56.5	50	04 22	05 01	05 34	07 19	08 35	09 55	11 18
12	1 01.1	N 3 45.6	44.6	343	39.9	14.7	S	5 36.3	15.3	56.5	45	04 32	05 07	05 37	07 15	08 26	09 40	10 57
13	16 01.3	44.6	358	13.6	14.7	5 51.6	15.3	56.5	N 40	04 40	05 12	05 40	07 12	08 19	09 28	10 40		
14	31 01.5	43.6	12 47.3	14.7	6 06.9	15.2	56.5	35	04 47	05 16	05 42	07 10	08 12	09 18	10 26			
15	46 01.7	42.7	27 21.0	14.6	6 22.1	15.3	56.5	30	04 52	05 20	05 44	07 07	08 07	09 09	10 14			
16	61 02.0	41.7	41 54.6	14.5	6 37.4	15.2	56.6	20	04 59	05 25	05 47	07 04	07 57	08 53	09 53			
17	76 02.2	40.8	56 28.1	14.5	6 52.6	15.2	56.6	N 10	05 04	05 29	05 50	07 00	07 49	08 40	09 35			
18	91 02.4	N 3 39.8	38.9	71 01.6	14.5	S 7 07.8	15.2	56.6	0	05 08	05 32	05 52	06 57	07 41	08 28	09 18		
19	106 02.6	38.9	85 35.1	14.4	7 23.0	15.1	56.6	S 10	05 09	05 34	05 55	06 54	07 33	08 15	09 02			
20	121 02.8	37.9	100 08.5	14.3	7 38.1	15.2	56.7	20	05 10	05 35	05 57	06 51	07 25	08 02	08 44			
21	136 03.1	36.9	114 41.8	14.3	7 53.3	15.1	56.7	30	05 08	05 36	06 00	06 47	07 16	07 48	08 24			
22	151 03.3	36.0	129 15.1	14.2	8 08.4	15.1	56.7	35	05 07	05 36	06 01	06 45	07 11	07 39	08 13			
23	166 03.5	35.0	143 48.3	14.2	8 23.5	15.1	56.7	40	05 05	05 36	06 03	06 42	07 05	07 30	07 59			
								45	05 02	05 36	06 05	06 40	06 58	07 18	07 44			
14 00	181 03.7	N 3 34.1	34.1	158 21.5	14.1	S 8 38.6	15.0	56.7	S 50	04 58	05 35	06 07	06 36	06 49	07 05	07 25		
01	196 03.9	33.1	172 54.6	14.1	8 53.6	15.0	56.8	52	04 55	05 35	06 08	06 35	06 46	06 59	07 16			
02	211 04.2	32.1	187 27.7	14.0	9 08.6	15.0	56.8	54	04 53	05 34	06 09	06 33	06 42	06 52	07 06			
03	226 04.4	31.2	202 00.7	13.9	9 23.6	15.0	56.8	56	04 50	05 34	06 10	06 32	06 37	06 44	06 54			
04	241 04.6	30.2	216 33.6	13.9	9 38.6	14.9	56.8	58	04 47	05 33	06 12	06 30	06 32	06 35	06 41			
05	256 04.8	29.3	231 06.5	13.8	9 53.5	14.9	56.8	S 60	04 43	05 32	06 13	06 27	06 26	06 26	06 26			
06	271 05.0	N 3 28.3	28.3	245 39.3	13.7	S 10 08.4	14.8	56.9										
07	286 05.3	27.3	260 12.0	13.7	10 23.2	14.8	56.9											
08	301 05.5	26.4	274 44.7	13.6	10 38.0	14.8	56.9											
09	316 05.7	25.4	289 17.3	13.6	10 52.8	14.8	56.9											
10	331 05.9	24.5	303 49.9	13.4	11 07.6	14.7	56.9											
11	346 06.1	23.5	318 22.3	13.4	11 22.3	14.6	57.0											
12	1 06.4	N 3 22.5	32.5	332 54.7	13.4	S 11 36.9	14.6	57.0										
13	16 06.6	21.6	347 27.1	13.2	11 51.5	14.6	57.0											
14	31 06.8	20.6	1 59.3	13.2	12 06.1	14.5	57.0											
15	46 07.0	19.7	16 31.5	13.1	12 20.6	14.5	57.0											
16	61 07.2	18.7	31 03.6	13.0	12 35.1	14.5	57.1											
17	76 07.5	17.7	45 35.6	12.9	12 49.6	14.3	57.1											
18	91 07.7	N 3 16.8	16.8	60 07.5	12.9	S 13 03.9	14.4	57.1										
19	106 07.9	15.8	74 39.4	12.8	13 18.3	14.3	57.1											
20	121 08.1	14.8	89 11.2	12.7	13 32.6	14.2	57.1											
21	136 08.3	13.9	103 42.9	12.6	13 46.8	14.2	57.2											
22	151 08.6	12.9	118 14.5	12.6	14 01.0	14.1	57.2											
23	166 08.8	12.0	132 46.1	12.4	14 15.1	14.0	57.2											
15 00	181 09.0	N 3 11.0	11.0	147 17.5	12.4	S 14 29.1	14.0	57.2	N 40	18 11	18 38	19 10	18 52	19 15	19 42	20 15		
01	196 09.2	10.0	161 48.9	12.3	14 43.1	14.0	57.2	35	18 09	18 34	19 04	18 56	19 23	19 54	20 30			
02	211 09.5	09.1	176 20.2	12.2	14 57.1	13.9	57.3	30	18 07	18 31	18 59	19 00	19 30	20 04	20 43			
03	226 09.7	08.1	190 51.4	12.1	15 11.0	13.8	57.3	20	18 04	18 26	18 52	19 06	19 42	20 21	21 06			
04	241 09.9	07.2	205 22.5	12.0	15 24.8	13.7	57.3	N 10	18 01	18 22	18 47	19 12	19 53	20 37	21 26			
05	256 10.1	06.2	219 53.5	11.9	15 38.5	13.7	57.3	0	17 59	18 20	18 44	19 18	20 03	20 51	21 44			
06	271 10.3	N 3 05.2	5.2	234 24.4	11.9	S 15 52.2	13.6	57.4	S 10	17 57	18 18	18 42	19 23	20 13	21 06	22 03		
07	286 10.6	04.3	248 55.3	11.7	16 05.8	13.6	57.4	20	17 54	18 16	18 42	19 29	20 24	21 21	22 23			
08	301 10.8	03.3	263 26.0	11.7	16 19.4	13.5	57.4	30	17 52	18 16	18 43	19 36	20 36	21 39	22 46			
09	316 11.0	02.3	277 56.7	11.5	16 32.9	13.4	57.4	35	17 50	18 16	18 45	19 40	20 43	21 50	22 59			
10	331 11.2	01.4	292 27.2	11.5	16 46.3	13.3	57.4	40	17 49	18 16	18 47	19 44	20 52	22 02	23 15			
11	346 11.4	3 00.4	306 57.7	11.4	16 59.6	13.3	57.5	45	17 47	18 16	18 50	19 49	21 01	22 16	23 34			
12	1 11.7	N 2 59.5	59.5	321 28.1	11.2	S 17 12.9	13.1	57.5	S 50	17 45	18 17	18 55	19 55	21 13	22 34	23 58		
13	16 11.9	58.5	335 58.3	11.2	17 26.0	13.1	57.5	52	17 44	18 18	18 57	19 58	21 18	22 42	24 09			
14	31 12.1	57.5	350 28.5	11.1	17 39.1	13.1	57.5	54	17 43	18 18	18 59	20 01	21 24	22 52	24 22			
15	46 12.3	56.6	4 58.6	11.0	17 52.2	12.9	57.5	56	17 42	18 19	19 02	20 05	21 31	23 02	24 37			
16	61 12.6	55.6	19 28.6	10.8	18 05.1	12.9	57.6	58										

G.M.T.		ARIES		VENUS -3-4		MARS -0-1		JUPITER -1-2		SATURN +0-3		STARS		
		G.H.A.	G.H.A. Dec.	G.H.A.	G.H.A. Dec.	G.H.A.	G.H.A. Dec.	G.H.A.	G.H.A. Dec.	G.H.A.	G.H.A. Dec.	Name	S.H.A.	Dec.
d	h	°	'	°	'	°	'	°	'	°	'		°	'
TUESDAY	00	354 45.9	210 50.6 N14 54.9	88 19.3 S 26 15.8	163 57.5 S 3 26.6	317 53.6 N11 47.0	Acamar	315 42.9	S 40 25.1					
	01	9 48.4	225 50.1 54.0	103 20.1 15.8	178 59.4 26.8	332 56.2 46.9	Achernar	335 50.4	S 57 23.1					
	02	24 50.9	240 49.5 53.2	118 20.9 15.7	194 01.4 27.0	347 58.8 46.9	Acrux	173 47.3	S 62 55.9					
	03	39 53.3	255 49.0 52.3	133 21.7 15.7	209 03.4 27.3	3 01.3 46.8	Adhara	255 38.6	S 28 55.4					
	04	54 55.8	270 48.5 51.5	148 22.5 15.7	224 05.4 27.5	18 03.9 46.8	Aldebaran	291 27.2	N 16 27.2					
	05	69 58.3	285 48.0 50.6	163 23.3 15.7	239 07.3 27.7	33 06.5 46.7								
	06	85 00.7	300 47.4 N14 49.7	178 24.1 S 26 15.7	254 09.3 S 3 27.9	48 09.0 N11 46.7	Alioth	166 49.8	N 56 07.6					
	07	100 03.2	315 46.9 48.9	193 24.9 15.7	269 11.3 28.1	63 11.6 46.7	Alkaid	153 25.0	N 49 28.0					
	08	115 05.7	330 46.4 48.0	208 25.7 15.7	284 13.3 28.3	78 14.2 46.6	Al Na'ir	28 24.4	S 47 06.5					
	09	130 08.1	345 45.9 47.1	223 26.5 15.7	299 15.3 28.5	93 16.7 46.6	Anilam	276 19.8	S 1 12.9					
	10	145 10.6	0 45.3 46.3	238 27.3 15.7	314 17.2 28.7	108 19.3 46.5	Alphard	218 28.8	S 8 31.3					
	11	160 13.1	15 44.8 45.4	253 28.2 15.7	329 19.2 28.9	123 21.9 46.5								
	12	175 15.5	30 44.3 N14 44.5	268 29.0 S 26 15.7	344 21.2 S 3 29.1	138 24.4 N11 46.4	Alphecca	126 39.1	N 26 49.0					
	13	190 18.0	45 43.8 43.7	283 29.8 15.7	359 23.2 29.3	153 27.0 46.4	Alpheratz	358 17.4	N 28 55.5					
	14	205 20.4	60 43.2 42.8	298 30.6 15.7	14 25.2 29.5	168 29.6 46.4	Altair	62 40.2	N 8 47.3					
	15	220 22.9	75 42.7 41.9	313 31.4 15.7	29 27.1 29.7	183 32.1 46.3	Ankaa	353 47.5	S 42 28.0					
	16	235 25.4	90 42.2 41.0	328 32.2 15.7	44 29.1 30.0	198 34.7 46.3	Antares	113 06.9	S 26 22.1					
17	250 27.8	105 41.7 40.2	343 33.0 15.7	59 31.1 30.2	213 37.3 46.2									
18	265 30.3	120 41.1 N14 39.3	358 33.8 S 26 15.6	74 33.1 S 3 30.4	228 39.8 N11 46.2	Arcturus	146 26.0	N 19 20.5						
19	280 32.8	135 40.6 38.4	13 34.6 15.6	89 35.1 30.6	243 42.4 46.1	Atria	108 38.6	S 68 58.9						
20	295 35.2	150 40.1 37.6	28 35.4 15.6	104 37.0 30.8	258 45.0 46.1	Avior	234 32.1	S 59 24.3						
21	310 37.7	165 39.6 36.7	43 36.1 15.6	119 39.0 31.0	273 47.6 46.1	Bellatrix	279 07.4	N 6 19.7						
22	325 40.2	180 39.0 35.8	58 36.9 15.6	134 41.0 31.2	288 50.1 46.0	Betelgeuse	271 37.0	N 7 24.4						
23	340 42.6	195 38.5 34.9	73 37.7 15.6	149 43.0 31.4	303 52.7 46.0									
WEDNESDAY	00	355 45.1	210 38.0 N14 34.0	88 38.5 S 26 15.6	164 44.9 S 3 31.6	318 55.3 N11 45.9	Canopus	264 10.9	S 52 40.2					
	01	10 47.6	225 37.5 33.2	103 39.3 15.6	179 46.9 31.8	333 57.8 45.9	Capella	281 23.2	N 45 58.1					
	02	25 50.0	240 37.0 32.3	118 40.1 15.6	194 48.9 32.0	349 00.4 45.8	Deneb	49 53.8	N 45 10.4					
	03	40 52.5	255 36.4 31.4	133 40.9 15.6	209 50.9 32.2	4 03.0 45.8	Denebola	183 07.5	N 14 44.6					
	04	55 54.9	270 35.9 30.5	148 41.7 15.5	224 52.9 32.5	19 05.5 45.8	Diphda	349 28.5	S 18 08.9					
	05	70 57.4	285 35.4 29.6	163 42.5 15.5	239 54.8 32.7	34 08.1 45.7								
	06	85 59.9	300 34.9 N14 28.8	178 43.3 S 26 15.5	254 56.8 S 3 32.9	49 10.7 N11 45.7	Dubhe	194 32.3	N 61 54.9					
	07	101 02.3	315 34.4 27.9	193 44.1 15.5	269 58.8 33.1	64 13.3 45.6	El Nath	278 54.3	N 28 35.1					
	08	116 04.8	330 33.8 27.0	208 44.9 15.5	285 00.8 33.3	79 15.8 45.6	Eltanin	91 01.4	N 51 29.7					
	09	131 07.3	345 33.3 26.1	223 45.7 15.5	300 02.8 33.5	94 18.4 45.5	Enif	34 19.2	N 9 44.2					
	10	146 09.7	0 32.8 25.2	238 46.5 15.5	315 04.7 33.7	109 21.0 45.5	Fomalhaut	15 59.8	S 29 46.9					
	11	161 12.2	15 32.3 24.4	253 47.3 15.5	330 06.7 33.9	124 23.5 45.4								
	12	176 14.7	30 31.8 N14 23.5	268 48.1 S 26 15.4	345 08.7 S 3 34.1	139 26.1 N11 45.4	Gacrux	172 38.6	S 56 56.6					
	13	191 17.1	45 31.2 22.6	283 48.9 15.4	0 10.7 34.3	154 28.7 45.4	Gienah	176 26.6	S 17 22.3					
	14	206 19.6	60 30.7 21.7	298 49.6 15.4	15 12.6 34.5	169 31.3 45.3	Hadar	149 35.6	S 60 13.8					
	15	221 22.0	75 30.2 20.8	313 50.4 15.4	30 14.6 34.7	184 33.8 45.3	Hamal	328 37.8	N 23 19.3					
	16	236 24.5	90 29.7 19.9	328 51.2 15.4	45 16.6 35.0	199 36.4 45.2	Kaus Aust.	84 27.4	S 34 24.2					
17	251 27.0	105 29.2 19.0	343 52.0 15.4	60 18.6 35.2	214 39.0 45.2									
18	266 29.4	120 28.7 N14 18.1	358 52.8 S 26 15.4	75 20.6 S 3 35.4	229 41.5 N11 45.1	Kochab	137 18.7	N 74 16.9						
19	281 31.9	135 28.1 17.2	13 53.6 15.3	90 22.5 35.6	244 44.1 45.1	Markab	14 10.9	N 15 02.6						
20	296 34.4	150 27.6 16.4	28 54.4 15.3	105 24.5 35.8	259 46.7 45.0	Menkar	314 49.4	N 3 58.6						
21	311 36.8	165 27.1 15.5	43 55.2 15.3	120 26.5 36.0	274 49.3 45.0	Menkent	148 47.0	S 36 13.4						
22	326 39.3	180 26.6 14.6	58 55.9 15.3	135 28.5 36.2	289 51.8 45.0	Miaplacidus	221 47.9	S 69 35.2						
23	341 41.8	195 26.1 13.7	73 56.7 15.3	150 30.4 36.4	304 54.4 44.9									
THURSDAY	00	356 44.2	210 25.6 N14 12.8	88 57.5 S 26 15.3	165 32.4 S 3 36.6	319 57.0 N11 44.9	Mirfak	309 27.6	N 49 45.3					
	01	11 46.7	225 25.1 11.9	103 58.3 15.2	180 34.4 36.8	334 59.6 44.8	Nunki	76 39.0	S 26 20.3					
	02	26 49.2	240 24.5 11.0	118 59.1 15.2	195 36.4 37.0	350 02.1 44.8	Peacock	54 10.5	S 56 50.2					
	03	41 51.6	255 24.0 10.1	133 59.9 15.2	210 38.4 37.2	5 04.7 44.7	Pollux	244 08.2	N 28 06.2					
	04	56 54.1	270 23.5 09.2	149 00.7 15.2	225 40.3 37.5	20 07.3 44.7	Procyon	245 34.3	N 5 18.5					
	05	71 56.5	285 23.0 08.3	164 01.4 15.2	240 42.3 37.7	35 09.9 44.6								
	06	86 59.0	300 22.5 N14 07.4	179 02.2 S 26 15.1	255 44.3 S 3 37.9	50 12.4 N11 44.6	Rasalhague	96 37.1	N 12 34.9					
	07	102 01.5	315 22.0 06.5	194 03.0 15.1	270 46.3 38.1	65 15.0 44.6	Regulus	208 18.8	N 12 07.1					
	08	117 03.9	330 21.5 05.6	209 03.8 15.1	285 48.2 38.3	80 17.6 44.5	Rigel	281 43.7	S 8 13.8					
	09	132 06.4	345 21.0 4.7	224 04.6 15.1	300 50.2 38.5	95 20.2 44.5	Rigel Kent.	140 37.5	S 60 42.8					
	10	147 08.9	0 20.4 03.8	239 05.3 15.1	315 52.2 38.7	110 22.7 44.4	Sabik	102 50.4	S 15 41.4					
	11	162 11.3	15 19.9 02.9	254 06.1 15.0	330 54.2 38.9	125 25.3 44.4								
	12	177 13.8	30 19.4 N14 02.0	269 06.9 S 26 15.0	345 56.1 S 3 39.1	140 27.9 N11 44.3	Schedar	350 18.0	N 56 22.3					
	13	192 16.3	45 18.9 01.1	284 07.7 15.0	0 58.1 39.3	155 30.5 44.3	Shaula	97 06.8	S 37 05.2					
	14	207 18.7	60 18.4 14 00.2	299 08.5 15.0	16 00.1 39.5	170 33.0 44.2	Sirius	259 02.9	S 16 40.1					
	15	222 21.2	75 17.9 13 59.3	314 09.2 15.0	31 02.1 39.7	185 35.6 44.2	Spica	159 06.4	S 11 00.2					
	16	237 23.7	90 17.4 58.4	329 10.0 14.9	46 04.1 40.0	200 38.2 44.2	Suhail	223 17.2	S 43 18.3					
17	252 26.1	105 16.9 57.5	344 10.8 14.9	61 06.0 40.2	215 40.8 44.1									
18	267 28.6	120 16.4 N13 56.6	359 11.6 S 26 14.9	76 08.0 S 3 40.4	230 43.3 N11 44.1	Vega	81 01.2	N 38 45.4						
19	282 31.0	135 15.8 55.7	14 12.4 14.9	91 10.0 40.6	245 45.9 44.0	Zuben'ubi	137 42.2	S 15 55.1						
20	297 33.5	150 15.3 54.7	29 13.1 14.8	106 12.0 40.8	260 48.5 44.0									
21	312 36.0	165 14.8 53.8	44 13.9 14.8	121 13.9 41.0	275 51.1 43.9									
22	327 38.4	180 14.3 52.9	59 14.7 14.8	136 15.9 41.2	290 53.7 43.9									
23	342 40.9	195 13.8 52.0	74 15.5 14.8	151 17.9 41.4	305 56.2 43.8									
Mer. Pass.		0 16.9	v -0.5 d 0.9	v 0.8 d 0.0	v 2.0 d 0.2	v 2.6 d 0.0								
		h m												

G.M.T.	SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise				
	G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.		Naut.	Civil		16	17	18	19	
d h	o	N	o	o	o	o	o	o	h m	h m	h m	h m	h m	h m	h m	h m
16	00	181 14.3 N	2 47.9	135 24.7	10.1	S 19 45.5	12.1	57.7	N 72	02 21	04 04	05 15	■	■	■	■
	01	196 14.6	46.9	149 53.8	9.9	19 57.6	12.1	57.7	N 70	02 49	04 16	05 19	■	■	■	■
	02	211 14.8	46.0	164 22.7	9.9	20 09.7	11.9	57.8	68	03 10	04 25	05 22	■	■	■	■
	03	226 15.0	45.0	178 51.6	9.7	20 21.6	11.9	57.8	66	03 26	04 33	05 25	14 04	■	■	■
	04	241 15.2	44.0	193 20.3	9.6	20 33.5	11.7	57.8	64	03 39	04 39	05 28	13 18	■	■	■
TUESDAY	05	256 15.4	43.1	207 48.9	9.5	20 45.2	11.6	57.8	62	03 49	04 45	05 30	12 48	14 59	■	■
	06	271 15.7 N	2 42.1	222 17.4	9.4	S 20 56.8	11.6	57.8	60	03 58	04 50	05 32	12 26	14 17	16 05	17 12
	07	286 15.9	41.1	236 45.8	9.3	21 08.4	11.4	57.9	N 58	04 05	04 54	05 33	12 07	13 49	15 23	16 30
	08	301 16.1	40.2	251 14.1	9.2	21 19.8	11.3	57.9	56	04 12	04 57	05 35	11 52	13 28	14 55	16 02
	09	316 16.3	39.2	265 42.3	9.1	21 31.1	11.2	57.9	54	04 18	05 00	05 36	11 39	13 10	14 33	15 39
WEDNESDAY	10	331 16.5	38.3	280 10.4	9.0	21 42.3	11.1	57.9	52	04 23	05 03	05 37	11 28	12 55	14 15	15 21
	11	346 16.8	37.3	294 38.4	8.9	21 53.4	11.0	57.9	50	04 27	05 06	05 38	11 18	12 42	14 00	15 06
	12	1 17.0 N	2 36.3	309 06.3	8.7	S 22 04.4	10.9	58.0	45	04 36	05 11	05 41	10 57	12 15	13 29	14 34
	13	16 17.2	35.4	323 34.0	8.6	22 15.3	10.7	58.0	N 40	04 43	05 15	05 42	10 40	11 54	13 05	14 10
	14	31 17.4	34.4	338 01.6	8.6	22 26.0	10.6	58.0	35	04 49	05 19	05 44	10 26	11 36	12 45	13 50
THURSDAY	15	46 17.7	33.4	352 29.2	8.4	22 36.6	10.5	58.0	30	04 53	05 21	05 45	10 14	11 21	12 29	13 33
	16	61 17.9	32.5	6 56.6	8.3	22 47.1	10.4	58.0	20	05 00	05 26	05 48	09 53	10 56	12 00	13 04
	17	76 18.1	31.5	21 23.9	8.2	22 57.5	10.3	58.0	N 10	05 04	05 29	05 50	09 35	10 34	11 36	12 39
	18	91 18.3 N	2 30.5	35 51.1	8.1	S 23 07.8	10.1	58.1	0	05 07	05 31	05 51	09 18	10 14	11 13	12 16
	19	106 18.5	29.6	50 18.2	8.0	23 17.9	10.1	58.1	S 10	05 08	05 32	05 53	09 02	09 54	10 51	11 53
FRIDAY	20	121 18.8	28.6	64 45.2	7.8	23 28.0	9.8	58.1	20	05 07	05 32	05 54	08 44	09 32	10 27	11 28
	21	136 19.0	27.6	79 12.0	7.8	23 37.8	9.8	58.1	30	05 05	05 32	05 56	08 24	09 08	09 59	10 59
	22	151 19.2	26.7	93 38.8	7.7	23 47.6	9.6	58.1	35	05 03	05 32	05 57	08 13	08 53	09 43	10 42
	23	166 19.4	25.7	108 05.5	7.5	23 57.2	9.5	58.2	40	05 00	05 31	05 58	07 59	08 36	09 24	10 22
									45	04 56	05 30	05 59	07 44	08 17	09 00	09 58
SATURDAY	00	181 19.7 N	2 24.7	122 32.0	7.4	S 24 06.7	9.4	58.2	S 50	04 51	05 28	06 00	07 25	07 52	08 31	09 27
	01	196 19.9	23.8	136 58.4	7.3	24 16.1	9.2	58.2	52	04 48	05 28	06 01	07 16	07 40	08 17	09 11
	02	211 20.1	22.8	151 24.7	7.2	24 25.3	9.1	58.2	54	04 45	05 27	06 02	07 06	07 26	08 00	08 53
	03	226 20.3	21.8	165 50.9	7.1	24 34.4	8.9	58.2	56	04 42	05 26	06 03	06 54	07 11	07 40	08 31
	04	241 20.5	20.9	180 17.0	7.0	24 43.3	8.8	58.3	58	04 38	05 24	06 03	06 41	06 52	07 15	08 03
SUNDAY	05	256 20.8	19.9	194 43.0	6.9	24 52.1	8.7	58.3	S 60	04 34	05 23	06 04	06 26	06 30	06 42	07 22
	06	271 21.0 N	2 18.9	209 08.9	6.8	S 25 00.8	8.5	58.3								
	07	286 21.2	18.0	223 34.7	6.7	25 09.3	8.3	58.3	Lat.	Sun-set	Twilight	Moonset				
	08	301 21.4	17.0	238 00.4	6.5	25 17.6	8.2	58.3			Civil	Naut.	16	17	18	19
	09	316 21.6	16.0	252 25.9	6.5	25 25.8	8.1	58.4	o	h m	h m	h m	h m	h m	h m	h m
MONDAY	10	331 21.9	15.1	266 51.4	6.4	25 33.9	7.9	58.4	N 72	18 32	19 42	21 21	■	■	■	■
	11	346 22.1	14.1	281 16.8	6.2	25 41.8	7.8	58.4	N 70	18 28	19 31	20 55	■	■	■	■
	12	1 22.3 N	2 13.1	295 42.0	6.2	S 25 49.6	7.6	58.4	68	18 24	19 21	20 35	■	■	■	■
	13	16 22.5	12.2	310 07.2	6.0	25 57.2	7.5	58.4	66	18 22	19 14	20 20	16 42	■	■	■
	14	31 22.8	11.2	324 32.2	6.0	26 04.7	7.3	58.4	64	18 20	19 08	20 08	17 30	■	■	■
TUESDAY	15	46 23.0	10.2	338 57.2	5.8	26 12.0	7.1	58.5	62	18 18	19 03	19 58	18 01	17 47	■	■
	16	61 23.2	09.3	353 22.0	5.8	26 19.1	7.0	58.5	60	18 16	18 58	19 49	18 24	18 29	18 48	19 53
	17	76 23.4	08.3	7 46.8	5.6	26 26.1	6.8	58.5	N 58	18 14	18 54	19 42	18 43	18 58	19 30	20 35
	18	91 23.6 N	2 07.3	22 11.4	5.5	S 26 32.9	6.7	58.5	56	18 13	18 50	19 36	18 59	19 20	19 58	21 03
	19	106 23.9	06.4	36 36.0	5.5	26 39.6	6.5	58.5	54	18 12	18 47	19 30	19 12	19 38	20 20	21 25
WEDNESDAY	20	121 24.1	05.4	51 00.5	5.3	26 46.1	6.3	58.6	52	18 11	18 45	19 25	19 24	19 54	20 38	21 43
	21	136 24.3	04.4	65 24.8	5.3	26 52.4	6.1	58.6	50	18 10	18 42	19 21	19 35	20 07	20 54	21 59
	22	151 24.5	03.5	79 49.1	5.2	26 58.5	6.0	58.6	45	18 08	18 37	19 12	19 57	20 35	21 25	22 30
	23	166 24.8	02.5	94 13.3	5.1	27 04.5	5.9	58.6	N 40	18 06	18 33	19 05	20 15	20 57	21 49	22 54
	00	181 25.0 N	2 01.5	108 37.4	5.0	S 27 10.4	5.6	58.6	35	18 05	18 30	18 59	20 30	21 15	22 09	23 14
THURSDAY	01	196 25.2	2 00.6	123 01.4	4.9	27 16.0	5.5	58.6	30	18 03	18 27	18 55	20 43	21 31	22 26	23 31
	02	211 25.4	1 59.6	137 25.3	4.9	27 21.5	5.3	58.7	20	18 01	18 23	18 49	21 06	21 57	22 55	23 59
	03	226 25.6	58.6	151 49.2	4.7	27 26.8	5.1	58.7	N 10	17 59	18 20	18 45	21 26	22 20	23 20	24 23
	04	241 25.9	57.7	166 12.9	4.7	27 31.9	5.0	58.7	0	17 58	18 18	18 43	21 44	22 42	23 43	24 46
	05	256 26.1	56.7	180 36.6	4.6	27 36.9	4.8	58.7	S 10	17 56	18 17	18 42	22 03	23 03	24 06	00 06
FRIDAY	06	271 26.3 N	1 55.7	195 00.2	4.5	S 27 41.7	4.6	58.7	20	17 55	18 17	18 42	22 23	23 26	24 31	00 31
	07	286 26.5	54.7	209 23.7	4.4	27 46.3	4.4	58.7	30	17 53	18 17	18 45	22 46	23 53	25 00	01 00
	08	301 26.8	53.8	223 47.1	4.4	27 50.7	4.2	58.8	35	17 53	18 18	18 47	22 59	24 09	00 09	01 17
	09	316 27.0	52.8	238 10.5	4.3	27 54.9	4.1	58.8	40	17 52	18 19	18 50	23 15	24 28	00 28	01 37
	10	331 27.2	51.8	252 33.8	4.2	27 59.0	3.8	58.8	45	17 51	18 20	18 54	23 34	24 50	00 50	02 01
SATURDAY	11	346 27.4	50.9	266 57.0	4.2	28 02.8	3.7	58.8	S 50	17 49	18 22	18 59	23 58	25 19	01 19	02 32
	12	1 27.6 N	1 49.9	281 20.2	4.1	S 28 06.5	3.5	58.8	52	17 49	18 23	19 02	24 09	00 09	01 33	02 47
	13	16 27.9	48.9	295 43.3	4.0	28 10.0	3.3	58.9	54	17 48	18 24	19 05	24 22	00 22	01 50	03 06
	14	31 28.1	48.0	310 06.3	4.0	28 13.3	3.2	58.9	56	17 48	18 25	19 09	24 37	00 37	02 09	03 27
	15	46 28.3	47.0	324 29.3	3.9	28 16.5	2.9	58.9	58	17 47	18 26	19 12	24 55	00 55	02 34	03 56
SUNDAY	16	61 28.5	46.0	338 52.2	3.8	28 19.4	2.8	58.9	S 60	17 46	18 28	19 17	25 17	0		

G.M.T.	ARIES		VENUS -34		MARS -01		JUPITER -12		SATURN +03		STARS		
	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h													
19 00	357 43.4	210 13.3 N13 51.1	89 16.2 S 26 14.8	166 19.9 S 3 41.6	320 58.8 N11 43.8	Acamar	315 42.9	S 40 25.1					
01	12 45.8	225 12.8	104 17.0	181 21.8	336 01.4	Achernar	335 50.4	S 57 23.1					
02	27 48.3	240 12.3	119 17.8	196 23.8	351 04.0	Acruz	173 47.3	S 62 55.9					
03	42 50.8	255 11.8	134 18.6	211 25.8	6 06.5	Adhara	255 38.6	S 28 55.4					
04	57 53.2	270 11.3	149 19.3	226 27.8	21 09.1	Aldebaran	291 27.2	N 16 27.2					
05	72 55.7	285 10.8	164 20.1	241 29.7	36 11.7								
06	87 58.2	300 10.3 N13 45.6	179 20.9 S 26 14.6	256 31.7 S 3 42.9	51 14.3 N11 43.5	Allioth	166 49.8	N 56 07.5					
07	103 00.6	315 09.8	194 21.7	271 33.7	66 16.9	Alkaid	153 25.0	N 49 27.9					
08	118 03.1	330 09.3	209 22.4	286 35.7	81 19.4	Al Na'ir	28 24.4	S 47 06.5					
F 09	133 05.5	345 08.8	224 23.2	301 37.6	96 22.0	Alnilam	276 19.8	S 1 12.9					
R 10	148 08.0	0 08.2	239 24.0	316 39.6	111 24.6	Alphard	218 28.8	S 8 31.3					
I 11	163 10.5	15 07.7	254 24.7	331 41.6	126 27.2								
D 12	178 12.9	30 07.2 N13 40.1	269 25.5 S 26 14.4	346 43.6 S 3 44.1	141 29.8 N11 43.2	Alphecca	126 39.1	N 26 49.0					
A 13	193 15.4	45 06.7	284 26.3	1 45.5	156 32.3	Regulatz	358 17.4	N 28 55.5					
Y 14	208 17.9	60 06.2	299 27.0	16 47.5	171 34.9	Altair	62 40.2	N 8 47.3					
15	223 20.3	75 05.7	314 27.8	31 49.5	186 37.5	Ankaa	353 47.5	S 42 28.0					
16	238 22.8	90 05.2	329 28.6	46 51.5	201 40.1	Antares	113 06.9	S 26 22.1					
17	253 25.3	105 04.7	344 29.3	61 53.4	216 42.7								
18	268 27.7	120 04.2 N13 34.6	359 30.1 S 26 14.3	76 55.4 S 3 45.4	231 45.2 N11 43.0	Arcturus	146 26.0	N 19 20.5					
19	283 30.2	135 03.7	37 14 30.9	91 57.4	246 47.8	Atria	108 38.6	S 68 58.8					
20	298 32.7	150 03.2	29 31.6	106 59.4	261 50.4	Avior	234 32.1	S 59 24.3					
21	313 35.1	165 02.7	44 32.4	122 01.3	276 53.0	Bellatrix	279 07.4	N 6 19.7					
22	328 37.6	180 02.2	59 33.2	141 03.3	291 55.6	Betelgeuse	271 37.0	N 7 24.4					
23	343 40.0	195 01.7	74 33.9	152 05.3	306 58.1								
20 00	358 42.5	210 01.2 N13 29.0	89 34.7 S 26 14.1	167 07.3 S 3 46.6	322 00.7 N11 42.7	Canopus	264 10.9	S 52 40.2					
01	13 45.0	225 00.7	104 35.5	182 09.2	337 03.3	Capella	281 23.2	N 45 58.2					
02	28 47.4	240 00.2	119 36.2	197 11.2	352 05.9	Deneb	49 53.8	N 45 10.4					
03	43 49.9	254 59.7	134 37.0	212 13.2	7 08.5	Denebola	183 07.5	N 14 44.6					
04	58 52.4	269 59.2	149 37.8	227 15.2	22 11.0	Diphda	349 28.5	S 18 08.9					
05	73 54.8	284 58.7	164 38.5	242 17.1	37 13.6								
06	88 57.3	299 58.2 N13 23.5	179 39.3 S 26 13.9	257 19.1 S 3 47.9	52 16.2 N11 42.4	Dubhe	194 32.2	N 61 54.9					
S 07	103 59.8	314 57.7	194 40.1	272 21.1	67 18.8	Elath	278 54.3	N 28 35.1					
A 08	119 02.2	329 57.2	209 40.8	287 23.1	82 21.4	Eltanin	91 01.4	N 51 29.7					
T 09	134 04.7	344 56.7	224 41.6	302 25.0	97 24.0	Enif	34 19.2	N 9 44.2					
U 10	149 07.2	359 56.2	239 42.3	317 27.0	112 26.5	Fomalhaut	15 59.8	S 29 46.9					
11	164 09.6	14 55.7	254 43.1	332 29.0	127 29.1								
R 12	179 12.1	29 55.2 N13 17.8	269 43.9 S 26 13.7	347 31.0 S 3 49.1	142 31.7 N11 42.1	Gacrux	172 38.6	S 56 56.6					
D 13	194 14.5	44 54.7	284 44.6	2 32.9	157 34.3	Gienah	176 26.6	S 17 22.3					
A 14	209 17.0	59 54.2	299 45.4	17 34.9	172 36.9	Hadar	149 35.7	S 60 13.8					
Y 15	224 19.5	74 53.7	314 46.1	32 36.9	187 39.4	Hamal	328 37.8	N 23 19.3					
16	239 21.9	89 53.2	329 46.9	47 38.9	202 42.0	Kaus Aust.	84 27.4	S 34 24.2					
17	254 24.4	104 52.7	344 47.7	62 40.8	217 44.6								
18	269 26.9	119 52.2 N13 12.2	359 48.4 S 26 13.4	77 42.8 S 3 50.4	232 47.2 N11 41.8	Kochab	137 18.8	N 74 16.9					
19	284 29.3	134 51.8	14 49.2	92 44.8	247 49.8	Markab	14 10.9	N 15 02.7					
20	299 31.8	149 51.3	29 49.9	107 46.8	262 52.4	Menkar	314 49.3	N 3 58.6					
21	314 34.3	164 50.8	44 50.7	122 48.7	277 55.0	Menkent	148 47.0	S 36 13.4					
22	329 36.7	179 50.3	59 51.4	137 50.7	292 57.5	Mlaplacidus	221 47.9	S 69 35.2					
23	344 39.2	194 49.8	74 52.2	152 52.7	308 00.1								
21 00	359 41.7	209 49.3 N13 06.6	89 53.0 S 26 13.2	167 54.7 S 3 51.6	323 02.7 N11 41.6	Mirfak	309 27.5	N 49 45.3					
01	14 44.1	224 48.8	104 53.7	182 56.6	338 05.3	Nunki	76 39.0	S 26 20.3					
02	29 46.6	239 48.3	119 54.5	197 58.6	353 07.9	Peacock	54 10.5	S 56 50.3					
03	44 49.0	254 47.8	134 55.2	213 00.6	8 10.5	Pollux	244 08.1	N 28 06.2					
04	59 51.5	269 47.3	149 56.0	228 02.6	23 13.0	Procyon	245 34.3	N 5 18.5					
05	74 54.0	284 46.8	164 56.7	243 04.5	38 15.6								
06	89 56.4	299 46.3 N13 00.9	179 57.5 S 26 13.0	258 06.5 S 3 52.9	53 18.2 N11 41.3	Rasalhague	96 37.1	N 12 34.9					
S 07	104 58.9	314 45.8	194 58.2	273 08.5	68 20.8	Regulus	208 18.8	N 12 07.1					
08	120 01.4	329 45.3	209 59.0	288 10.4	83 23.4	Rigel	281 43.7	S 8 13.8					
U 09	135 03.8	344 44.8	224 59.7	303 12.4	98 26.0	Rigel Kent.	140 37.5	S 60 42.8					
N 10	150 06.3	359 44.4	240 00.5	318 14.4	113 28.6	Sabik	102 50.4	S 15 41.4					
D 11	165 08.8	14 43.9	255 01.2	333 16.4	128 31.1								
A 12	180 11.2	29 43.4 N12 55.2	270 02.0 S 26 12.7	348 18.3 S 3 54.2	143 33.7 N11 41.0	Schedar	350 18.0	N 56 22.4					
Y 13	195 13.7	44 42.9	285 02.7	3 20.3	158 36.3	Shaula	97 06.8	S 37 05.2					
14	210 16.1	59 42.4	300 03.5	18 22.3	173 38.9	Sirius	259 02.9	S 16 40.0					
15	225 18.6	74 41.9	315 04.2	33 24.3	188 41.5	Spica	159 06.4	S 11 00.2					
16	240 21.1	89 41.4	330 05.0	48 26.2	203 44.1	Suhail	223 17.2	S 43 18.2					
17	255 23.5	104 40.9	345 05.7	63 28.2	218 46.7								
18	270 26.0	119 40.4 N12 49.5	0 06.5 S 26 12.5	78 30.2 S 3 55.4	233 49.2 N11 40.7	Vega	81 01.2	N 38 45.4					
19	285 28.5	134 40.0	15 07.2	93 32.2	248 51.8	Zuben'ubl	137 42.2	S 15 55.1					
20	300 30.9	149 39.5	30 08.0	108 34.1	263 54.4								
21	315 33.4	164 39.0	45 08.7	123 36.1	278 57.0								
22	330 35.9	179 38.5	60 09.5	138 38.1	293 59.6								
23	345 38.3	194 38.0	75 10.2	153 40.0	309 02.2								
Mer. Pass.	h m	v -0.5 d 0.9	v 0.8 d 0.0	v 2.0 d 0.2	v 2.6 d 0.0								
	0 05.2					Venus	211 18.7	10 00					
						Mars	90 52.2	18 01					
						Jupiter	168 24.8	12 50					
						Saturn	323 18.2	2 32					

G.M.T.	SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise				
	G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.		Naut.	Civil		19	20	21	22	
d h	°	'	°	'	°	'	'	°	h m	h m	h m	h m	h m	h m	h m	h m
19 00	181 30.3 N	1 38.3	93 53.6	3.5	S 28 36.1	1.2	59.0	N 72	02 43	04 19	05 28	■	■	■	■	20 37
	196 30.5	37.3	108 16.1	3.4	S 28 37.3	1.0	59.1	N 70	03 06	04 29	05 31	■	■	■	■	19 34
	211 30.8	36.3	122 38.5	3.4	S 28 38.3	0.8	59.1	68	03 24	04 36	05 33	■	■	■	■	18 57
	226 31.0	35.4	137 00.9	3.4	S 28 39.1	0.7	59.1	66	03 38	04 43	05 35	■	■	■	19 19	18 31
	241 31.2	34.4	151 23.3	3.4	S 28 39.8	0.4	59.1	64	03 49	04 48	05 36	■	■	■	18 33	18 11
05	256 31.4	33.4	165 45.6	3.3	S 28 40.2	0.2	59.1	62	03 58	04 53	05 38	■	18 16	■	18 02	17 54
06	271 31.6 N	1 32.5	180 07.9	3.3	S 28 40.4	0.1	59.1	60	04 06	04 57	05 39	17 12	17 33	17 39	17 40	
07	286 31.9	31.5	194 30.2	3.3	S 28 40.5	0.2	59.1	N 58	04 13	05 00	05 40	16 30	17 04	17 20	17 28	
08	301 32.1	30.5	208 52.5	3.3	S 28 40.3	0.3	59.2	56	04 19	05 03	05 41	16 02	16 42	17 05	17 18	
09	316 32.3	29.5	223 14.8	3.2	S 28 40.0	0.6	59.2	54	04 24	05 06	05 41	15 39	16 24	16 51	17 09	
10	331 32.5	28.6	237 37.0	3.2	S 28 39.4	0.8	59.2	52	04 28	05 08	05 42	15 21	16 08	16 39	17 00	
11	346 32.7	27.6	251 59.3	3.2	S 28 38.6	0.9	59.2	50	04 32	05 10	05 43	15 06	15 54	16 28	16 53	
12	1 33.0 N	1 26.6	266 21.5	3.2	S 28 37.7	1.2	59.2	45	04 40	05 15	05 44	14 34	15 26	16 06	16 37	
13	16 33.2	25.7	280 43.7	3.2	S 28 36.5	1.3	59.2	N 40	04 46	05 18	05 45	14 10	15 04	15 48	16 24	
14	31 33.4	24.7	295 05.9	3.2	S 28 35.2	1.6	59.3	35	04 51	05 21	05 46	13 50	14 46	15 33	16 12	
15	46 33.6	23.7	309 28.1	3.2	S 28 33.6	1.7	59.3	30	04 55	05 23	05 47	13 33	14 30	15 20	16 02	
16	61 33.9	22.7	323 50.3	3.3	S 28 31.9	2.0	59.3	20	05 01	05 26	05 48	13 04	14 03	14 57	15 45	
17	76 34.1	21.8	338 12.6	3.2	S 28 29.9	2.1	59.3	N 10	05 04	05 28	05 49	12 39	13 40	14 38	15 30	
18	91 34.3 N	1 20.8	352 34.8	3.2	S 28 27.8	2.3	59.3	0	05 06	05 30	05 50	12 16	13 19	14 19	15 16	
19	106 34.5	19.8	6 57.0	3.3	S 28 25.5	2.6	59.3	S 10	05 06	05 30	05 51	11 53	12 57	14 01	15 02	
20	121 34.7	18.9	21 19.3	3.2	S 28 22.9	2.7	59.3	20	05 04	05 30	05 52	11 28	12 34	13 41	14 46	
21	136 35.0	17.9	35 41.5	3.3	S 28 20.2	3.0	59.3	30	05 01	05 29	05 52	10 59	12 07	13 18	14 29	
22	151 35.2	16.9	50 03.8	3.3	S 28 17.2	3.1	59.4	35	04 58	05 28	05 53	10 42	11 51	13 04	14 18	
23	166 35.4	16.0	64 26.1	3.3	S 28 14.1	3.3	59.4	40	04 55	05 26	05 53	10 22	11 32	12 48	14 07	
24								45	04 50	05 24	05 54	09 58	11 09	12 29	13 53	
25	181 35.6 N	1 15.0	78 48.4	3.3	S 28 10.8	3.6	59.4	S 50	04 44	05 22	05 54	09 27	10 40	12 06	13 35	
01	196 35.9	14.0	93 10.7	3.4	S 28 07.2	3.7	59.4	52	04 41	05 21	05 54	09 11	10 26	11 54	13 27	
02	211 36.1	13.0	107 33.1	3.4	S 28 03.5	3.9	59.4	54	04 38	05 19	05 54	08 53	10 09	11 41	13 18	
03	226 36.3	12.1	121 55.5	3.4	S 27 59.6	4.1	59.4	56	04 34	05 18	05 55	08 31	09 50	11 26	13 08	
04	241 36.5	11.1	136 17.9	3.5	S 27 55.5	4.3	59.4	58	04 29	05 16	05 55	08 03	09 25	11 08	12 56	
05	256 36.7	10.1	150 40.4	3.5	S 27 51.2	4.5	59.5	S 60	04 24	05 14	05 55	07 22	08 52	10 47	12 42	
06	271 37.0 N	1 09.2	165 02.9	3.5	S 27 46.7	4.7	59.5									
07	286 37.2	08.2	179 25.4	3.6	S 27 42.0	4.9	59.5	Lat.	Sun-set	Twilight		Moonset				
08	301 37.4	07.2	193 48.0	3.6	S 27 37.1	5.1	59.5			Civil	Naut.	19	20	21	22	
09	316 37.6	06.2	208 10.6	3.6	S 27 32.0	5.3	59.5	°	h m	h m	h m	h m	h m	h m	h m	h m
10	331 37.8	05.3	222 33.2	3.8	S 27 26.7	5.5	59.5	N 72	18 16	19 25	20 58	■	■	■	■	22 47
11	346 38.1	04.3	236 56.0	3.7	S 27 21.2	5.6	59.5	N 70	18 14	19 16	20 36	■	■	■	■	23 49
12	1 38.3 N	1 03.3	251 18.7	3.8	S 27 15.6	5.9	59.5	68	18 12	19 08	20 20	■	■	■	■	
13	16 38.5	02.4	265 41.5	3.9	S 27 09.7	6.0	59.5	66	18 10	19 02	20 06	■	■	■	22 04	24 48
14	31 38.7	01.4	280 04.4	3.9	S 27 03.7	6.2	59.6	64	18 09	18 57	19 55	■	■	■	22 49	25 07
15	46 39.0	1 00.4	294 27.3	4.0	S 26 57.5	6.4	59.6	62	18 08	18 52	19 47	■	21 00	■	23 19	25 22
16	61 39.2	0 59.4	308 50.3	4.0	S 26 51.1	6.6	59.6	60	18 07	18 49	19 39	19 53	21 42	23 41	25 35	
17	76 39.4	58.5	323 13.3	4.1	S 26 44.5	6.8	59.6	N 58	18 06	18 45	19 32	20 35	22 11	23 59	25 46	
18	91 39.6 N	0 57.5	337 36.4	4.2	S 26 37.7	6.9	59.6	56	18 05	18 42	19 27	21 03	22 33	24 14	00 14	
19	106 39.8	56.5	351 59.6	4.2	S 26 30.8	7.2	59.6	54	18 04	18 40	19 22	21 25	22 51	24 27	00 27	
20	121 40.1	55.6	6 22.8	4.3	S 26 23.6	7.3	59.6	52	18 04	18 38	19 17	21 43	23 06	24 38	00 38	
21	136 40.3	54.6	20 46.1	4.4	S 26 16.3	7.5	59.6	50	18 03	18 36	19 14	21 59	23 19	24 48	00 48	
22	151 40.5	53.6	35 09.5	4.4	S 26 08.8	7.7	59.6	45	18 02	18 31	19 06	22 30	23 46	25 09	01 09	
23	166 40.7	52.6	49 32.9	4.5	S 26 01.1	7.8	59.6	N 40	18 01	18 28	19 00	22 54	24 07	00 07	01 26	
24	181 41.0 N	0 51.7	63 56.4	4.6	S 25 53.3	8.1	59.7	35	18 00	18 25	18 55	23 14	24 25	00 25	01 40	
01	196 41.2	50.7	78 20.0	4.7	S 25 45.2	8.2	59.7	30	17 59	18 23	18 51	23 31	24 40	00 40	01 52	
02	211 41.4	49.7	92 43.7	4.7	S 25 37.0	8.3	59.7	20	17 58	18 20	18 46	23 59	25 06	01 06	02 12	
03	226 41.6	48.8	107 07.4	4.8	S 25 28.7	8.6	59.7	N 10	17 57	18 18	18 43	24 23	00 23	01 28	02 30	
04	241 41.8	47.8	121 31.2	4.9	S 25 20.1	8.7	59.7	0	17 57	18 17	18 41	24 46	00 46	01 48	02 47	
05	256 42.1	46.8	135 55.1	5.0	S 25 11.4	8.9	59.7	S 10	17 56	18 17	18 41	00 06	01 09	02 08	03 03	
06	271 42.3 N	0 45.8	150 19.1	5.0	S 25 02.5	9.1	59.7	20	17 56	18 18	18 43	00 31	01 33	02 30	03 20	
07	286 42.5	44.9	164 43.1	5.1	S 24 53.4	9.2	59.7	30	17 55	18 19	18 47	01 00	02 01	02 54	03 40	
08	301 42.7	43.9	179 07.2	5.3	S 24 44.2	9.4	59.7	35	17 55	18 20	18 49	01 17	02 17	03 09	03 52	
09	316 42.9	42.9	193 31.5	5.3	S 24 34.8	9.5	59.7	40	17 54	18 22	18 53	01 37	02 36	03 26	04 05	
10	331 43.2	42.0	207 55.8	5.4	S 24 25.3	9.7	59.7	45	17 54	18 24	18 58	02 01	03 00	03 45	04 20	
11	346 43.4	41.0	222 20.2	5.4	S 24 15.6	9.9	59.7	S 50	17 54	18 26	19 04	02 32	03 29	04 10	04 39	
12	1 43.6 N	0 40.0	236 44.6	5.6	S 24 05.7	10.0	59.7	52	17 54	18 28	19 07	02 47	03 44	04 22	04 48	
13	16 43.8	39.0	251 09.2	5.6	S 23 55.7	10.2	59.8	54	17 54	18 29	19 11	03 06	04 00	04 36	04 58	
14	31 44.0	38.1	265 33.8	5.8	S 23 45.5	10.4	59.8	56	17 54	18 31	19 15	03 27	04 21	04 51	05 09	
15	46 44.3	37.1	279 58.6													

G.M.T.	ARIES		VENUS -3-4		MARS 0-0		JUPITER -1-2		SATURN +0-2		STARS		
	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "
22 00	0 40-8	209 37-5 N 12 43-7	90 11-0 S 26 12-2	168 42-0 S 3 56-7	324 04-8 N 11 40-4	Acamar	315 42-9	S 40 25-1					
01	15 43-2	224 37-0 42-8	105 11-7 12-1	183 44-0 56-9	339 07-4 40-3	Achernar	335 50-4	S 57 23-1					
02	30 45-7	239 36-5 41-8	120 12-5 12-1	198 46-0 57-1	354 09-9 40-3	Acruz	173 47-3	S 62 55-9					
03	45 48-2	254 36-1 40-8	135 13-2 12-0	213 47-9 57-3	9 12-5 40-2	Adhara	255 38-5	S 28 55-4					
04	60 50-6	269 35-6 39-9	150 13-9 12-0	228 49-9 57-5	24 15-1 40-2	Aldebaran	291 27-2	N 16 27-2					
05	75 53-1	284 35-1 38-9	165 14-7 11-9	243 51-9 57-7	39 17-7 40-1								
06	90 55-6	299 34-6 N 12 38-0	180 15-4 S 26 11-9	258 53-9 S 3 57-9	54 20-3 N 11 40-1	Alloth	166 49-8	N 56 07-5					
07	105 58-0	314 34-1 37-0	195 16-2 11-8	273 55-8 58-1	69 22-9 40-0	Alkaid	153 25-0	N 49 27-9					
08	121 00-5	329 33-6 36-0	210 16-9 11-8	288 57-8 58-3	84 25-5 40-0	Al Na'ir	28 24-4	S 47 06-6					
09	136 03-0	344 33-2 35-1	225 17-7 11-7	303 59-8 58-5	99 28-1 40-0	Alnilam	276 19-8	S 1 12-9					
10	151 05-4	359 32-7 34-1	240 18-4 11-7	319 01-7 58-8	114 30-7 39-9	Alphard	218 28-7	S 8 31-3					
11	166 07-9	14 32-2 33-1	255 19-1 11-6	334 03-7 59-0	129 33-2 39-9								
12	181 10-4	29 31-7 N 12 32-2	270 19-9 S 26 11-6	349 05-7 S 3 59-2	144 35-8 N 11 39-8	Alphecca	126 39-1	N 26 49-0					
13	196 12-8	44 31-2 31-2	285 20-6 11-5	4 07-7 59-4	159 38-4 39-8	Alpheratz	358 17-4	N 28 55-5					
14	211 15-3	59 30-7 30-2	300 21-4 11-5	19 09-6 59-6	174 41-0 39-7	Altair	62 40-3	N 8 47-3					
15	226 17-7	74 30-3 29-3	315 22-1 11-4	34 11-6 3 59-8	189 43-6 39-7	Ankaa	353 47-5	S 42 28-0					
16	241 20-2	89 29-8 28-3	330 22-9 11-4	49 13-6 4 00-0	204 46-2 39-6	Antares	113 06-9	S 26 22-1					
17	256 22-7	104 29-3 27-3	345 23-6 11-3	64 15-5 00-2	219 48-8 39-6								
18	271 25-1	119 28-8 N 12 26-4	0 24-3 S 26 11-3	79 17-5 S 4 00-4	234 51-4 N 11 39-5	Arcturus	146 26-0	N 19 20-5					
19	286 27-6	134 28-3 25-4	15 25-1 11-2	94 19-5 00-6	249 54-0 39-5	Atria	108 38-7	S 68 58-8					
20	301 30-1	149 27-8 24-4	30 25-8 11-2	109 21-5 00-8	264 56-6 39-4	Avior	234 32-1	S 59 24-3					
21	316 32-5	164 27-4 23-4	45 26-5 11-1	124 23-4 01-1	279 59-2 39-4	Bellatrix	279 07-3	N 6 19-7					
22	331 35-0	179 26-9 22-5	60 27-3 11-1	139 25-4 01-3	295 01-7 39-3	Betelgeuse	271 37-0	N 7 24-4					
23	346 37-5	194 26-4 21-5	75 28-0 11-0	154 27-4 01-5	310 04-3 39-3								
23 00	1 39-9	209 25-9 N 12 20-5	90 28-8 S 26 11-0	169 29-3 S 4 01-7	325 06-9 N 11 39-2	Canopus	264 10-9	S 52 40-2					
01	16 42-4	224 25-4 19-5	105 29-5 10-9	184 31-3 01-9	340 09-5 39-2	Capella	281 23-1	N 45 58-2					
02	31 44-9	239 25-0 18-6	120 30-2 10-8	199 33-3 02-1	355 12-1 39-1	Deneb	49 53-8	N 45 10-5					
03	46 47-3	254 24-5 17-6	135 31-0 10-8	214 35-3 02-3	10 14-7 39-1	Denebola	183 07-5	N 14 44-6					
04	61 49-8	269 24-0 16-6	150 31-7 10-7	229 37-2 02-5	25 17-3 39-0	Diphda	349 28-5	S 18 08-9					
05	76 52-2	284 23-5 15-6	165 32-4 10-7	244 39-2 02-7	40 19-9 39-0								
06	91 54-7	299 23-0 N 12 14-7	180 33-2 S 26 10-6	259 41-2 S 4 02-9	55 22-5 N 11 38-9	Dubhe	194 32-2	N 61 54-9					
07	106 57-2	314 22-6 13-7	195 33-9 10-6	274 43-1 03-1	70 25-1 38-9	Elath	278 54-3	N 28 35-1					
08	121 59-6	329 22-1 12-7	210 34-6 10-5	289 45-1 03-4	85 27-7 38-8	Eltanin	91 01-5	N 51 29-7					
09	137 02-1	344 21-6 11-7	225 35-4 10-4	304 47-1 03-6	100 30-3 38-8	Enif	34 19-2	N 9 44-2					
10	152 04-6	359 21-1 10-7	240 36-1 10-4	319 49-1 03-8	115 32-8 38-7	Fomalhaut	15 59-8	S 29 46-9					
11	167 07-0	14 20-7 09-8	255 36-8 10-3	334 51-0 04-0	130 35-4 38-7								
12	182 09-5	29 20-2 N 12 08-8	270 37-6 S 26 10-3	349 53-0 S 4 04-2	145 38-0 N 11 38-6	Gacrux	172 38-6	S 56 56-6					
13	197 12-0	44 19-7 07-8	285 38-3 10-2	4 55-0 04-4	160 40-6 38-6	Gienah	176 26-6	S 17 22-3					
14	212 14-4	59 19-2 06-8	300 39-0 10-1	19 57-0 04-6	175 43-2 38-5	Hadar	149 35-7	S 60 13-8					
15	227 16-9	74 18-8 05-8	315 39-8 10-1	34 58-9 04-8	190 45-8 38-5	Hamal	328 37-8	N 23 19-3					
16	242 19-4	89 18-3 04-8	330 40-5 10-0	50 00-9 05-0	205 48-4 38-4	Kaus Aust.	84 27-5	S 34 24-2					
17	257 21-8	104 17-8 03-9	345 41-2 10-0	65 02-9 05-2	220 51-0 38-4								
18	272 24-3	119 17-3 N 12 02-9	0 42-0 S 26 09-9	80 04-8 S 4 05-5	235 53-6 N 11 38-3	Kochab	137 18-8	N 74 16-9					
19	287 26-7	134 16-9 01-9	15 42-7 09-8	95 06-8 05-7	250 56-2 38-3	Markab	14 10-9	N 15 02-7					
20	302 29-2	149 16-4 12 00-9	30 43-4 09-8	110 08-8 05-9	265 58-8 38-2	Menkar	314 49-3	N 3 58-6					
21	317 31-7	164 15-9 11 59-9	45 44-2 09-7	125 10-8 06-1	281 01-4 38-2	Menkent	148 47-0	S 36 13-4					
22	332 34-1	179 15-4 58-9	60 44-9 09-7	140 12-7 06-3	296 04-0 38-1	Miaplacidus	221 47-8	S 69 35-2					
23	347 36-6	194 15-0 57-9	75 45-6 09-6	155 14-7 06-5	311 06-6 38-1								
24 00	2 39-1	209 14-5 N 11 57-0	90 46-4 S 26 09-5	170 16-7 S 4 06-7	326 09-2 N 11 38-0	Mirfak	309 27-5	N 49 45-3					
01	17 41-5	224 14-0 56-0	105 47-1 09-5	185 18-6 06-9	341 11-8 38-0	Nunki	76 39-0	S 26 20-3					
02	32 44-0	239 13-5 55-0	120 47-8 09-4	200 20-6 07-1	356 14-4 37-9	Peacock	54 10-5	S 56 50-3					
03	47 46-5	254 13-1 54-0	135 48-5 09-3	215 22-6 07-3	11 16-9 37-9	Pollux	244 08-1	N 28 06-1					
04	62 48-9	269 12-6 53-0	150 49-3 09-3	230 24-5 07-5	26 19-5 37-8	Procyon	245 34-3	N 5 18-5					
05	77 51-4	284 12-1 52-0	165 50-0 09-2	245 26-5 07-8	41 22-1 37-8								
06	92 53-8	299 11-6 N 11 51-0	180 50-7 S 26 09-1	260 28-5 S 4 08-0	56 24-7 N 11 37-7	Rasalhague	96 37-1	N 12 34-9					
07	107 56-3	314 11-2 50-0	195 51-4 09-1	275 30-5 08-2	71 27-3 37-7	Regulus	208 18-8	N 12 07-1					
08	122 58-8	329 10-7 49-0	210 52-2 09-0	290 32-4 08-4	86 29-9 37-6	Rigel	281 43-7	S 8 13-8					
09	138 01-2	344 10-2 48-0	225 52-9 09-0	305 34-4 08-6	101 32-5 37-5	Rigel Kent.	140 37-6	S 60 42-8					
10	153 03-7	359 09-8 47-0	240 53-6 08-9	320 36-4 08-8	116 35-1 37-5	Sabik	102 50-5	S 15 41-4					
11	168 06-2	14 09-3 46-0	255 54-3 08-8	335 38-3 09-0	131 37-7 37-4								
12	183 08-6	29 08-8 N 11 45-0	270 55-1 S 26 08-8	350 40-3 S 4 09-2	146 40-3 N 11 37-4	Schedar	350 18-0	N 56 22-4					
13	198 11-1	44 08-4 44-0	285 55-8 08-7	5 42-3 09-4	161 42-9 37-3	Shaula	97 06-8	S 37 05-2					
14	213 13-6	59 07-9 43-0	300 56-5 08-6	20 44-3 09-6	176 45-5 37-3	Sirius	259 02-9	S 16 40-0					
15	228 16-0	74 07-4 42-0	315 57-2 08-5	35 46-2 09-8	191 48-1 37-2	Spica	159 06-4	S 11 00-2					
16	243 18-5	89 06-9 41-0	330 58-0 08-5	50 48-2 10-1	206 50-7 37-2	Suhail	223 17-2	S 43 18-2					
17	258 21-0	104 06-5 40-0	345 58-7 08-4	65 50-2 10-3	221 53-3 37-1								
18	273 23-4	119 06-0 N 11 39-0	0 59-4 S 26 08-3	80 52-1 S 4 10-5	236 55-9 N 11 37-1	Vega	81 01-3	N 38 45-4					
19	288 25-9	134 05-5 38-0	16 00-1 08-3	95 54-1 10-7	251 58-5 37-0	Zuben'ubi	137 42-2	S 15 55-1					
20	303 28-3	149 05-1 37-0	31 00-8 08-2	110 56-1 10-9	267 01-1 37-0								
21	318 30-8	164 04-6 36-0	46 01-6 08-1	125 58-0 11-1	282 03-7 36-9								
22	333 33-3	179 04-1 35-0	61 02-3 08-1	141 00-0 11-3	297 06-3 36-9	Venus	207 46-0	h 10 03					
23	348 35-7	194 03-7 34-0	76 03-0 08-0	156 02-0 11-5	312 08-9 36-8	Mars	88 48-9	h 17 57					
Mer. Pass.	h m	v -0-5 d 1-0	v 0-7 d 0-1	v 2-0 d 0-2	v 2-6 d 0-1	Jupiter	167 49-4	12 40					
						Saturn	323 27-0	2 19					

G.M.T.		SUN		MOON						Lat.	Twilight		Sun-rise	Moonrise														
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.	Naut.		Civil	22		23	24	25												
d	h	°	'	°	'	°	'	'	°	h	m	h	m	h	m	h	m	h	m									
22	00	181	46.2 N	0	28.3	49	45.4	6.7	S	21	55.3	11.8	59.8	N 72	03	03	04	33	05	42	20	37	18	56	18	10	17	32
	01	196	46.5	27.4	64	11.1	6.8	S	21	43.5	12.0	59.8	N 70	03	22	04	41	05	43	19	34	18	37	18	02	17	33	
	02	211	46.7	26.4	78	36.9	6.8	S	21	31.5	12.1	59.8	68	03	37	04	48	05	44	18	57	18	21	17	56	17	34	
	03	226	46.9	25.4	93	02.7	7.0	S	21	19.4	12.2	59.8	66	03	49	04	53	05	44	18	31	18	08	17	51	17	35	
	04	241	47.1	24.4	107	28.7	7.0	S	21	07.2	12.3	59.8	64	03	59	04	57	05	45	18	11	17	57	17	46	17	36	
	05	256	47.3	23.5	121	54.7	7.2	S	20	54.9	12.5	59.8	62	04	07	05	01	05	45	17	54	17	48	17	42	17	37	
	06	271	47.6 N	0	22.5	136	20.9	7.2	S	20	42.4	12.6	59.8	60	04	14	05	04	05	46	17	40	17	40	17	39	17	37
	07	286	47.8	21.5	150	47.1	7.4	S	20	29.8	12.7	59.8	N 58	04	20	05	07	05	46	17	28	17	33	17	36	17	38	
	08	301	48.0	20.6	165	13.5	7.4	S	20	17.1	12.9	59.8	56	04	25	05	09	05	46	17	18	17	27	17	33	17	39	
	09	316	48.2	19.6	179	39.9	7.6	S	20	04.2	13.0	59.8	54	04	30	05	12	05	47	17	09	17	21	17	31	17	39	
	10	331	48.4	18.6	194	06.5	7.6	S	19	51.2	13.1	59.8	52	04	33	05	13	05	47	17	00	17	16	17	28	17	39	
	11	346	48.7	17.6	208	33.1	7.7	S	19	38.1	13.2	59.8	50	04	37	05	15	05	47	16	53	17	11	17	26	17	40	
	12	1	48.9 N	0	16.7	222	59.8	7.8	S	19	24.9	13.3	59.8	45	04	44	05	18	05	48	16	37	17	01	17	22	17	41
	13	16	49.1	15.7	237	26.6	7.9	S	19	11.6	13.5	59.8	N 40	04	49	05	21	05	48	16	24	16	53	17	18	17	41	
	14	31	49.3	14.7	251	53.5	8.1	S	18	58.1	13.5	59.8	35	04	54	05	23	05	48	16	12	16	45	17	15	17	42	
	15	46	49.5	13.7	266	20.6	8.1	S	18	44.6	13.7	59.8	30	04	57	05	25	05	49	16	02	16	39	17	12	17	43	
	16	61	49.8	12.8	280	47.7	8.2	S	18	30.9	13.8	59.8	20	05	01	05	27	05	49	15	45	16	28	17	07	17	44	
	17	76	50.0	11.8	295	14.9	8.2	S	18	17.1	13.9	59.8	N 10	05	04	05	28	05	49	15	30	16	18	17	02	17	45	
	18	91	50.2 N	0	10.8	309	42.1	8.4	S	18	03.2	14.0	59.8	0	05	05	05	29	05	49	15	16	16	09	16	58	17	46
	19	106	50.4	09.9	324	09.5	8.5	S	17	49.2	14.1	59.8	S 10	05	04	05	28	05	49	15	02	15	59	16	54	17	47	
	20	121	50.6	08.9	338	37.0	8.6	S	17	35.1	14.2	59.8	20	05	01	05	27	05	49	14	46	15	49	16	49	17	48	
	21	136	50.9	07.9	353	04.6	8.6	S	17	20.9	14.3	59.8	30	04	57	05	25	05	49	14	29	15	38	16	44	17	49	
	22	151	51.1	06.9	7	32.2	8.8	S	17	06.6	14.4	59.8	35	04	54	05	23	05	48	14	18	15	31	16	41	17	49	
	23	166	51.3	06.0	22	00.0	8.8	S	16	52.2	14.5	59.8	40	04	50	05	21	05	48	14	07	15	24	16	38	17	50	
24	181	51.5 N	0	05.0	36	27.8	8.9	S	16	37.7	14.6	59.8	45	04	44	05	19	05	48	13	53	15	15	16	34	17	51	
23	00	181	51.5 N	0	05.0	36	27.8	8.9	S	16	37.7	14.6	59.8	S 50	04	37	05	15	05	47	13	35	15	04	16	29	17	52
	01	196	51.7	04.0	50	55.7	9.1	S	16	23.1	14.6	59.8	52	04	34	05	13	05	47	13	27	14	59	16	27	17	53	
	02	211	52.0	03.0	65	23.8	9.1	S	16	08.5	14.8	59.8	54	04	30	05	12	05	47	13	18	14	53	16	25	17	53	
	03	226	52.2	02.1	79	51.9	9.2	S	15	53.7	14.9	59.8	56	04	25	05	10	05	47	13	08	14	47	16	22	17	54	
	04	241	52.4	01.1	94	20.1	9.2	S	15	38.8	14.9	59.8	58	04	20	05	07	05	46	12	56	14	40	16	19	17	55	
	05	256	52.6 N	0	00.1	108	48.3	9.4	S	15	23.9	15.1	59.8	S 60	04	14	05	04	05	46	12	42	14	32	16	16	17	56
	06	271	52.8 S	0	00.9	123	16.7	9.5	S	15	08.8	15.1	59.8	Lat.		Sun-set		Twilight		Moonset								
	07	286	53.1	01.8	137	45.2	9.5	S	14	53.7	15.2	59.8	Civil		Naut.		22	23	24	25								
	08	301	53.3	02.8	152	13.7	9.6	S	14	38.5	15.3	59.8	°	h	m	h	m	h	m	h	m	h	m	h	m	h	m	
	09	316	53.5	03.8	166	42.3	9.7	S	14	23.2	15.3	59.7	N 72	18	01	19	09	20	38	22	47	26	18	02	18	04	49	
	10	331	53.7	04.8	181	11.0	9.8	S	14	07.9	15.4	59.7	N 70	18	00	19	01	20	19	23	49	26	35	02	35	04	53	
	11	346	53.9	05.7	195	39.8	9.9	S	13	52.5	15.5	59.7	68	17	59	18	55	20	04	24	48	00	23	02	48	04	56	
	12	1	54.2 S	0	06.7	210	08.7	9.9	S	13	37.0	15.6	59.7	66	17	59	18	50	19	53	24	48	00	48	02	59	04	58
	13	16	54.4	07.7	224	37.6	10.0	S	13	21.4	15.7	59.7	64	17	58	18	46	19	43	25	07	01	07	03	08	05	00	
	14	31	54.6	08.6	239	06.6	10.1	S	13	05.7	15.7	59.7	62	17	58	18	42	19	36	25	22	01	22	03	15	05	02	
	15	46	54.8	09.6	253	35.7	10.2	S	12	50.0	15.8	59.7	60	17	58	18	39	19	29	25	35	01	35	03	22	05	04	
	16	61	55.0	10.6	268	04.9	10.3	S	12	34.2	15.8	59.7	N 58	17	57	18	37	19	23	25	46	01	46	03	28	05	05	
	17	76	55.2	11.6	282	34.2	10.3	S	12	18.4	15.9	59.7	56	17	57	18	34	19	18	00	14	01	55	03	33	05	06	
	18	91	55.5 S	0	12.5	297	03.5	10.4	S	12	02.5	16.0	59.7	54	17	57	18	32	19	14	00	27	02	04	03	37	05	07
	19	106	55.7	13.5	311	32.9	10.5	S	11	46.5	16.0	59.7	52	17	57	18	30	19	10	00	38	02	11	03	41	05	08	
	20	121	55.9	14.5	326	02.4	10.5	S	11	30.5	16.1	59.6	50	17	57	18	29	19	07	00	48	02	18	03	45	05	09	
	21	136	56.1	15.5	340	31.9	10.7	S	11	14.4	16.1	59.6	45	17	56	18	25	19	00	01	09	02	32	03	53	05	11	
	22	151	56.3	16.4	355	01.6	10.6	S	10	58.3	16.2	59.6	N 40	17	56	18	23	18	55	01	26	02	44	03	59	05	13	
	23	166	56.6	17.4	9	31.2	10.8	S	10	42.1	16.3	59.6	35	17	56	18	21	18	51	01	40	02	53	04	05	05	14	
24	00	181	56.8 S	0	18.4	24	01.0	10.8	S	10	25.8	16.3	59.6	30	17	56	18	20	18	47	01	52	03	02	04	10	05	15
	01	196	57.0	19.4	38	30.8	10.9	S	10	09.5	16.3	59.6	20	17	56	18	18	18	43	02	12	03	17	04				

	ARIES			VENUS -3-4			MARS 0-0			JUPITER -1-2			SATURN +0-2			STARS		
G.M.T.	G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.				
d h	°	°	°	°	°	°	°	°	°	°	°		°	°				
25 00	3 38-2	209 03-2	N11 33-0	91 03-7	S 26 07-9	171 04-0	S 4 11-7	327 11-5	N11 36-8	Acamar	315 42-9	S 40 25-2						
	18 40-7	224 02-7	32-0	106 04-5	07-9	186 05-9	11-9	342 14-1	36-7	Achernar	335 50-4	S 57 23-1						
	33 43-1	239 02-3	31-0	121 05-2	07-8	201 07-9	12-1	357 16-7	36-7	Arctur	173 47-3	S 62 55-9						
	48 45-6	254 01-8	30-0	136 05-9	07-7	216 09-9	12-4	12 19-3	36-6	Adhara	255 38-5	S 28 55-4						
	63 48-1	269 01-3	29-0	151 06-6	07-6	231 11-8	12-6	27 21-9	36-6	Aldebaran	291 27-1	N 16 27-2						
05	78 50-5	284 00-9	28-0	166 07-3	07-6	246 13-8	12-8	42 24-5	36-5									
06	93 53-0	299 00-4	N11 27-0	181 08-0	S 26 07-5	261 15-8	S 4 13-0	57 27-1	N11 36-5	Alioth	166 49-8	N 56 07-5						
07	108 55-5	313 59-9	26-0	196 08-8	07-4	276 17-7	13-2	72 29-7	36-4	Alkaid	153 25-0	N 49 27-9						
T H U R S D A Y	123 57-9	328 59-5	25-0	211 09-5	07-3	291 19-7	13-4	87 32-2	36-4	Al Na'ir	28 24-4	S 47 06-6						
	139 00-4	343 59-0	24-0	226 10-2	07-3	306 21-7	13-6	102 34-8	36-3	Alnilam	276 19-8	S 1 12-9						
	154 02-8	358 58-5	23-0	241 10-9	07-2	321 23-7	13-8	117 37-4	36-3	Alphard	218 28-7	S 8 31-3						
	169 05-3	13 58-1	22-0	256 11-6	07-1	336 25-6	14-0	132 40-0	36-2									
	184 07-8	28 57-6	N11 20-9	271 12-4	S 26 07-0	351 27-6	S 4 14-2	147 42-6	N11 36-2	Alphecca	126 39-1	N 26 49-0						
13	199 10-2	43 57-2	19-9	286 13-1	07-0	6 29-6	14-5	162 45-2	36-1	Alpheratz	358 17-4	N 28 55-5						
14	214 12-7	58 56-7	18-9	301 13-8	06-9	21 31-5	14-7	177 47-8	36-1	Altair	62 40-3	N 8 47-3						
15	229 15-2	73 56-2	17-9	316 14-5	06-8	36 33-5	14-9	192 50-4	36-0	Ankaa	353 47-5	S 42 28-0						
16	244 17-6	88 55-8	16-9	331 15-2	06-7	51 35-5	15-1	207 53-0	36-0	Antares	113 06-9	S 26 22-1						
17	259 20-1	103 55-3	15-9	346 15-9	06-7	66 37-4	15-3	222 55-6	35-9									
18	274 22-6	118 54-8	N11 14-9	1 16-6	S 26 06-6	81 39-4	S 4 15-5	237 58-2	N11 35-8	Arcturus	146 26-0	N 19 20-4						
19	289 25-0	133 54-4	13-9	16 17-4	06-5	96 41-4	15-7	253 00-8	35-8	Atria	108 38-7	S 68 58-8						
20	304 27-5	148 53-9	12-8	31 18-1	06-4	111 43-3	15-9	268 03-4	35-7	Avior	234 32-1	S 59 24-3						
21	319 29-9	163 53-5	11-8	46 18-8	06-4	126 45-3	16-1	283 06-0	35-7	Bellatrix	279 07-3	N 6 19-7						
22	334 32-4	178 53-0	10-8	61 19-5	06-3	141 47-3	16-3	298 08-6	35-6	Betelgeuse	271 37-0	N 7 24-4						
23	349 34-9	193 52-5	09-8	76 20-2	06-2	156 49-3	16-5	313 11-2	35-6									
26 00	4 37-3	208 52-1	N11 08-8	91 20-9	S 26 06-1	171 51-2	S 4 16-8	328 13-8	N11 35-5	Canopus	264 10-8	S 52 40-2						
	19 39-8	223 51-6	07-8	106 21-6	06-0	186 53-2	17-0	343 16-4	35-5	Capella	281 23-1	N 45 58-2						
	34 42-3	238 51-2	06-7	121 22-3	06-0	201 55-2	17-2	358 19-0	35-4	Deneb	49 53-8	N 45 10-5						
	49 44-7	253 50-7	05-7	136 23-1	05-9	216 57-1	17-4	13 21-6	35-4	Denebola	183 07-5	N 14 44-6						
	64 47-2	268 50-2	04-7	151 23-8	05-8	231 59-1	17-6	28 24-2	35-3	Diphda	349 28-5	S 18 08-9						
05	79 49-7	283 49-8	03-7	166 24-5	05-7	247 01-1	17-8	43 26-9	35-3									
06	94 52-1	298 49-3	N11 02-7	181 25-2	S 26 05-6	262 03-0	S 4 18-0	58 29-5	N11 35-2	Dubhe	194 32-2	N 61 54-9						
07	109 54-6	313 48-9	01-6	196 25-9	05-6	277 05-0	18-2	73 32-1	35-2	Elnath	278 54-2	N 28 35-1						
08	124 57-0	328 48-4	11 00-6	211 26-6	05-5	292 07-0	18-4	88 34-7	35-1	Eltanin	91 01-5	N 51 29-7						
F R I D A Y	139 59-5	343 47-9	10 59-6	226 27-3	05-4	307 08-9	18-6	103 37-3	35-1	Enif	34 19-3	N 9 44-2						
	155 02-0	358 47-5	58-6	241 28-0	05-3	322 10-9	18-9	118 39-9	35-0	Fomalhaut	15 59-8	S 29 46-9						
	170 04-4	13 47-0	57-5	256 28-7	05-2	337 12-9	19-1	133 42-5	35-0									
	185 06-9	28 46-6	N10 56-5	271 29-4	S 26 05-2	352 14-8	S 4 19-3	148 45-1	N11 34-9	Gacrux	172 38-6	S 56 56-6						
	200 09-4	43 46-1	55-5	286 30-2	05-1	7 16-8	19-5	163 47-7	34-9	Gienah	176 26-6	S 17 22-3						
14	215 11-8	58 45-6	54-5	301 30-9	05-0	22 18-8	19-7	178 50-3	34-8	Hadar	149 35-7	S 60 13-8						
15	230 14-3	73 45-2	53-4	316 31-6	04-9	37 20-8	19-9	193 52-9	34-7	Hamal	328 37-8	N 23 19-4						
16	245 16-8	88 44-7	52-4	331 32-3	04-8	52 22-7	20-1	208 55-5	34-7	Kaus Aust.	84 27-5	S 34 24-2						
17	260 19-2	103 44-3	51-4	346 33-0	04-7	67 24-7	20-3	223 58-1	34-6									
18	275 21-7	118 43-8	N10 50-4	1 33-7	S 26 04-6	82 26-7	S 4 20-5	239 00-7	N11 34-6	Kochab	137 18-9	N 74 16-9						
19	290 24-2	133 43-4	49-3	16 34-4	04-6	97 28-6	20-7	254 03-3	34-5	Markab	14 10-9	N 15 02-7						
20	305 26-6	148 42-9	48-3	31 35-1	04-5	112 30-6	20-9	269 05-9	34-5	Menkar	314 49-3	N 3 58-6						
21	320 29-1	163 42-5	47-3	46 35-8	04-4	127 32-6	21-2	284 08-5	34-4	Menkent	148 47-0	S 36 13-4						
22	335 31-5	178 42-0	46-2	61 36-5	04-3	142 34-5	21-4	299 11-1	34-4	Miaplacidus	221 47-8	S 69 35-2						
23	350 34-0	193 41-5	45-2	76 37-2	04-2	157 36-5	21-6	314 13-7	34-3									
27 00	5 36-5	208 41-1	N10 44-2	91 37-9	S 26 04-1	172 38-5	S 4 21-8	329 16-3	N11 34-3	Mirfak	309 27-5	N 49 45-3						
	20 38-9	223 40-6	43-2	106 38-6	04-0	187 40-4	22-0	344 18-9	34-2	Nunki	76 39-1	S 26 20-3						
	35 41-4	238 40-2	42-1	121 39-3	04-0	202 42-4	22-2	359 21-5	34-2	Peacock	54 10-6	S 56 50-3						
	50 43-9	253 39-7	41-1	136 40-0	03-9	217 44-4	22-4	14 24-1	34-1	Pollux	244 08-1	N 28 06-1						
	65 46-3	268 39-3	40-1	151 40-7	03-8	232 46-3	22-6	29 26-7	34-1	Procyon	245 34-3	N 5 18-5						
04	80 48-8	283 38-8	39-0	166 41-4	03-7	247 48-3	22-8	44 29-3	34-0									
06	95 51-3	298 38-4	N10 38-0	181 42-1	S 26 03-6	262 50-3	S 4 23-0	59 31-9	N11 34-0	Rasalhague	96 37-1	N 12 34-9						
07	110 53-7	313 37-9	37-0	196 42-8	03-5	277 52-2	23-3	74 34-5	33-9	Regulus	208 18-8	N 12 07-1						
08	125 56-2	328 37-5	35-9	211 43-5	03-4	292 54-2	23-5	89 37-1	33-8	Rigel	281 43-7	S 8 13-8						
S A T U R D A Y	140 58-7	343 37-0	34-9	226 44-2	03-3	307 56-2	23-7	104 39-7	33-8	Rigel Kent.	140 37-6	S 60 42-8						
	156 01-1	358 36-6	33-8	241 44-9	03-2	322 58-2	23-9	119 42-4	33-7	Sabik	102 50-5	S 15 41-4						
	171 03-6	13 36-1	32-8	256 45-6	03-2	338 00-1	24-1	134 45-0	33-7									
	186 06-0	28 35-7	N10 31-8	271 46-3	S 26 03-1	353 02-1	S 4 24-3	149 47-6	N11 33-6	Schedar	350 18-0	N 56 22-4						
	201 08-5	43 35-2	30-7	286 47-0	03-0	8 04-1	24-5	164 50-2	33-6	Shaula	97 06-8	S 37 05-2						
14	216 11-0	58 34-7	29-7	301 47-7	02-9	23 06-0	24-7	179 52-8	33-5	Sirius	259 02-9	S 16 40-0						
15	231 13-4	73 34-3	28-7	316 48-4	02-8	38 08-0	24-9	194 55-4	33-5	Spica	159 06-4	S 11 00-2						
16	246 15-9	88 33-8	27-6	331 49-1	02-7	53 10-0	25-1	209 58-0	33-4	Suhail	223 17-2	S 43 18-2						
17	261 18-4	103 33-4	26-6	346 49-8	02-6	68 11-9	25-3	225 00-6	33-4									
18	276 20-8	118 32-9	N10 25-5	1 50-5	S 26 02-5	83 13-9	S 4 25-6	240 03-2	N11 33-3	Vega	81 01-3	N 38 45-4						
19	291 23-3	133 32-5	24-5	16 51-2	02-4	98 15-9	25-8	255 05-8	33-2	Zuben'ubi	137 42-3	S 15 55-1						
20	306 25-8	148 32-0	23-5	31 51-9	02-3	113 17-8	26-0	270 08-4	33-2									
21	321 28-2	163 31-6	22-4	46 52-6	02-2	128 19-8	26-2	285 11-0	33-1									
22	336 30-7	178 31-1	21-4	61 53-3	02-1	143 21-8	26-4	300 13-6	33-1	Venus	204 14-8	10 05						
23	351 33-1	193 30-7	20-3	76 54-0	02-0	158 23-7	26-6	315 16-2	33-0	Mars	86 43-6	17 54						
										Jupiter	167 13-9	12 31						
										Saturn	323 36-5	2 07						
Mer. Pass. 23 37-6		v -0.5 d 1-0		v 0-7 d 0-1		v 2-0 d 0-2		v 2-6 d 0-1										

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise							
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	25	26	27	28			
d	h	°	'	°	'	°	'	'	h	m	h	m	h	m	h	m	h	m	
25	00	182	02.0 S	0 41.8	12 13.0	12.1	S	3 45.1	16.9	59.2	N 72	03 20	04 47	05 55	17 32	16 53	16 04	□	
	01	197	02.2	42.7	26 44.1	12.2		3 28.2	17.0	59.2	N 70	03 37	04 54	05 55	17 33	17 04	16 29	15 27	
	02	212	02.4	43.7	41 15.3	12.2		3 11.2	17.0	59.2	68	03 50	04 59	05 54	17 34	17 13	16 47	16 10	
	03	227	02.6	44.7	55 46.5	12.2		2 54.2	17.0	59.2	66	04 00	05 03	05 54	17 35	17 20	17 03	16 40	
	04	242	02.9	45.7	70 17.7	12.3		2 37.2	16.9	59.2	64	04 09	05 06	05 53	17 36	17 26	17 15	17 02	
05	257	03.1	46.6	84 49.0	12.2		2 20.3	17.0	59.1	62	04 16	05 09	05 53	17 37	17 31	17 26	17 20		
06	272	03.3	S 0 47.6	99 20.2	12.4	S	2 03.3	17.0	59.1	60	04 22	05 11	05 53	17 37	17 36	17 35	17 35		
T H U R S D A Y	07	287	03.5	48.6	113 51.6	12.3		1 46.3	16.9	59.1	N 58	04 27	05 14	05 53	17 38	17 40	17 43	17 48	
	08	302	03.7	49.6	128 22.9	12.4		1 29.4	17.0	59.1	56	04 31	05 15	05 52	17 39	17 44	17 51	17 59	
	09	317	03.9	50.5	142 54.3	12.4		1 12.4	17.0	59.0	54	04 35	05 17	05 52	17 39	17 47	17 57	18 09	
	10	332	04.2	51.5	157 25.7	12.5		0 55.4	16.9	59.0	52	04 39	05 18	05 52	17 39	17 51	18 03	18 18	
	11	347	04.4	52.5	171 57.2	12.4		0 38.5	17.0	59.0	50	04 42	05 20	05 52	17 40	17 53	18 08	18 26	
12	2 04.6	S 0 53.4	186 28.6	12.5	S	0 21.5	16.9	59.0	N 40	04 52	05 24	05 51	17 41	18 05	18 29	18 57			
13	17 04.8	54.4	201 00.1	12.5	S	0 04.6	16.9	59.0	35	04 56	05 25	05 51	17 42	18 09	18 38	19 08			
14	32 05.0	55.4	215 31.6	12.6	N	0 12.3	16.9	58.9	30	04 59	05 26	05 50	17 43	18 13	18 45	19 19			
15	47 05.2	56.4	230 03.2	12.5		0 29.2	16.9	58.9	20	05 02	05 28	05 50	17 44	18 20	18 58	19 37			
16	62 05.5	57.3	244 34.7	12.6		0 46.1	16.9	58.9	N 10	05 04	05 28	05 49	17 45	18 26	19 09	19 53			
17	77 05.7	58.3	259 06.3	12.6		1 03.0	16.8	58.9	0	05 03	05 27	05 48	17 46	18 32	19 19	20 08			
18	92 05.9	S 0 59.3	273 37.9	12.7	N	1 19.8	16.9	58.8	S 10	05 02	05 26	05 47	17 47	18 38	19 30	20 23			
19	107 06.1	1 00.3	288 09.6	12.6		1 36.7	16.8	58.8	20	04 59	05 24	05 46	17 48	18 45	19 42	20 39			
20	122 06.3	01.2	302 41.2	12.6		1 53.5	16.8	58.8	30	04 53	05 21	05 45	17 49	18 52	19 55	20 57			
21	137 06.5	02.2	317 12.8	12.7		2 10.3	16.7	58.8	35	04 49	05 19	05 44	17 49	18 56	20 02	21 08			
22	152 06.8	03.2	331 44.5	12.7		2 27.0	16.8	58.7	40	04 44	05 16	05 43	17 50	19 01	20 11	21 21			
23	167 07.0	04.2	346 16.2	12.7		2 43.8	16.7	58.7	45	04 38	05 13	05 42	17 51	19 07	20 22	21 36			
26	00	182	07.2 S	1 05.1	0 47.9	12.7	N	3 00.5	16.7	58.7	S 50	04 30	05 08	05 41	17 52	19 14	20 34	21 55	
	01	197	07.4	06.1	15 19.6	12.7		3 17.2	16.6	58.7	52	04 26	05 06	05 40	17 53	19 17	20 40	22 03	
	02	212	07.6	07.1	29 51.3	12.7		3 33.8	16.6	58.6	54	04 22	05 04	05 39	17 53	19 20	20 47	22 13	
	03	227	07.8	08.0	44 23.0	12.7		3 50.4	16.6	58.6	56	04 17	05 01	05 39	17 54	19 24	20 54	22 24	
	04	242	08.0	09.0	58 54.7	12.8		4 07.0	16.6	58.6	58	04 11	04 58	05 38	17 55	19 29	21 03	22 37	
05	257	08.3	10.0	73 26.5	12.7		4 23.6	16.5	58.6	S 60	04 04	04 55	05 37	17 56	19 34	21 12	22 52		
06	272	08.5	S 1 11.0	87 58.2	12.8	N	4 40.1	16.4	58.5	Lat.		Sun-set		Twilight		Moonset			
07	287	08.7	11.9	102 30.0	12.7		4 56.5	16.5	58.5	h m		h m		h m		h m		h m	
08	302	08.9	12.9	117 01.7	12.8		5 13.0	16.4	58.5	h m		h m		h m		h m		h m	
09	317	09.1	13.9	131 33.5	12.7		5 29.4	16.3	58.5	N 72	17 45	18 53	20 18	04 49	07 11	09 41	□		
10	332	09.3	14.9	146 05.2	12.8		5 45.7	16.3	58.4	N 70	17 46	18 47	20 02	04 53	07 04	09 19	12 02		
11	347	09.5	15.8	160 37.0	12.7		6 02.0	16.3	58.4	68	17 47	18 42	19 50	04 56	06 58	09 02	11 20		
12	2 09.8	S 1 16.8	175 08.7	12.8	N	6 18.3	16.2	58.4	66	17 47	18 38	19 40	04 58	06 53	08 48	10 51			
13	17 10.0	17.8	189 40.5	12.7		6 34.5	16.2	58.3	64	17 48	18 35	19 32	05 00	06 49	08 37	10 30			
14	32 10.2	18.8	204 12.2	12.8		6 50.7	16.1	58.3	62	17 48	18 32	19 25	05 02	06 45	08 28	10 13			
15	47 10.4	19.7	218 44.0	12.7		7 06.8	16.1	58.3	60	17 49	18 30	19 19	05 04	06 42	08 20	09 59			
16	62 10.6	20.7	233 15.7	12.7		7 22.9	16.0	58.3	N 58	17 49	18 28	19 14	05 05	06 39	08 13	09 47			
17	77 10.8	21.7	247 47.4	12.8		7 38.9	16.0	58.2	56	17 49	18 26	19 10	05 06	06 37	08 07	09 37			
18	92 11.0	S 1 22.7	262 19.2	12.7	N	7 54.9	15.9	58.2	54	17 49	18 25	19 06	05 07	06 35	08 02	09 28			
19	107 11.3	23.6	276 50.9	12.7		8 10.8	15.9	58.2	52	17 50	18 23	19 03	05 08	06 33	07 57	09 20			
20	122 11.5	24.6	291 22.6	12.7		8 26.7	15.8	58.1	50	17 50	18 22	19 00	05 09	06 31	07 52	09 13			
21	137 11.7	25.6	305 54.3	12.7		8 42.5	15.7	58.1	45	17 51	18 20	18 54	05 11	06 27	07 43	08 57			
22	152 11.9	26.6	320 26.0	12.6		8 58.2	15.7	58.1	N 40	17 51	18 18	18 49	05 13	06 24	07 35	08 45			
23	167 12.1	27.5	334 57.6	12.7		9 13.9	15.6	58.1	35	17 52	18 17	18 46	05 14	06 21	07 28	08 34			
27	00	182	12.3 S	1 28.5	349 29.3	12.6	N	9 29.5	15.6	58.0	30	17 52	18 16	18 44	05 15	06 19	07 22	08 25	
	01	197	12.5	29.5	4 00.9	12.7		9 45.1	15.5	58.0	20	17 53	18 15	18 40	05 17	06 15	07 12	08 09	
	02	212	12.7	30.5	18 32.6	12.6		10 00.6	15.5	58.0	N 10	17 54	18 15	18 39	05 19	06 11	07 03	07 55	
	03	227	13.0	31.4	33 04.2	12.6		10 16.1	15.3	57.9	0	17 55	18 15	18 39	05 21	06 08	06 55	07 42	
	04	242	13.2	32.4	47 35.8	12.5		10 31.4	15.3	57.9	S 10	17 56	18 17	18 41	05 22	06 04	06 46	07 29	
05	257	13.4	33.4	62 07.3	12.6		10 46.7	15.3	57.9	20	17 57	18 19	18 44	05 24	06 01	06 37	07 16		
06	272	13.6	S 1 34.3	76 38.9	12.6	N 11	10.2	15.1	57.8	30	17 58	18 22	18 50	05 26	05 57	06 28	07 00		
07	287	13.8	35.3	91 10.5	12.5		11 17.1	15.1	57.8	35	17 59	18 25	18 54	05 27	05 54	06 22	06 51		
08	302	14.0	36.3	105 42.0	12.5		11 32.2	15.1	57.8	40	18 00	18 27	18 59	05 28	05 52	06 15	06 41		
09	317	14.2	37.3	120 13.5	12.5		11 47.3	14.9	57.8	45	18 01	18 31	19 06	05 30	05 48	06 08	06 29		
10	332	14.4	38.2	134 45.0	12.4		12 02.2	14.9	57.7	S 50	18 03	18 35	19 14	05 31	05 45	05 59	06 15		
11	347	14.7	39.2	149 16.4	12.4		12 17.1	14.8	57.7	52	18 04	18 38	19 18	05 32	05 43	05 55	06 08		
12	2 14.9	S 1 40.2	163 47.8	12.4	N 12	31.9	14.8	57.7	54	18 05	18 40	19 22	05 33	05 41	05 50	06 01			
13	17 15.1	41.2	178 19.2	12.4		12 46.7	14.6	57.6	56	18 05	18 43	19 28	05 34	05 39	05 45	05 52			
14	32 15.3	42.1	192 50.6	12.4		13 01.3	14.6	57.6	58	18 06	18 46	19 33	05 35	05 37	05 40	05 43			
15	47 15.5	43.1	207 22.0	12.3		13 15.9	14.5	57.6	S 60	18 07	18 49	19 40	05 36	05 34	05 33	05 33			
16	62 15.7	44.1	221 53.3	12.3		13 30.4	14.4	57.5											

G.M.T.	SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise				
	G.H.A.	Dec.	G.H.A.	ψ	Dec.	d	H.P.		Naut.	Civil		28	29	30	I	
												h	m	h	m	h
d h	°	°	°	'	°	'	'	°	h m	h m	h m	h m	h m	h m	h m	
2800	182 17.4	S 1 51.9	338 02.9	12.1	N 15 23.4	13.7	57.3	N 72	03 37	05 01	06 09	□	□	□	□	
	197 17.6	52.8	352 34.0	12.0	15 37.1	13.6	57.3	N 70	03 51	05 06	06 06	15 27	□	□	□	
	212 17.8	53.8	7 05.0	12.0	15 50.7	13.6	57.2	68	04 02	05 09	06 05	16 10	□	□	□	
	227 18.0	54.8	21 36.0	11.9	16 04.3	13.4	57.2	66	04 11	05 12	06 03	16 40	15 54	□	□	
	242 18.3	55.8	36 06.9	12.0	16 17.7	13.4	57.2	64	04 18	05 15	06 02	17 02	16 42	□	□	
	257 18.5	56.7	50 37.9	11.8	16 31.1	13.3	57.1	62	04 24	05 17	06 01	17 20	17 13	17 04	□	
	272 18.7	S 1 57.7	65 08.7	11.9	N 16 44.4	13.1	57.1	60	04 29	05 18	06 00	17 35	17 37	17 43	17 59	
	287 18.9	58.7	79 39.6	11.8	16 57.5	13.1	57.1	N 58	04 34	05 20	05 59	17 48	17 56	18 10	18 36	
	302 19.1	1 59.7	94 10.4	11.8	17 10.6	13.0	57.0	56	04 38	05 21	05 58	17 59	18 12	18 31	19 03	
	317 19.3	2 00.6	108 41.2	11.7	17 23.6	12.9	57.0	54	04 41	05 22	05 58	18 09	18 25	18 49	19 24	
SUN 10	332 19.5	01.6	123 11.9	11.7	17 36.5	12.8	57.0	52	04 44	05 23	05 57	18 18	18 37	19 04	19 41	
	347 19.7	02.6	137 42.6	11.7	17 49.3	12.6	56.9	50	04 47	05 24	05 56	18 26	18 48	19 17	19 56	
	2 19.9	S 2 03.5	152 13.3	11.6	N 18 01.9	12.6	56.9	45	04 52	05 26	05 55	18 43	19 10	19 44	20 27	
	17 20.1	04.5	166 43.9	11.6	18 14.5	12.5	56.9	N 40	04 55	05 27	05 54	18 57	19 28	20 06	20 50	
	32 20.4	05.5	181 14.5	11.5	18 27.0	12.4	56.8	35	04 58	05 28	05 53	19 08	19 43	20 23	21 10	
	47 20.6	06.5	195 45.0	11.6	18 39.4	12.2	56.8	30	05 00	05 28	05 52	19 19	19 57	20 39	21 26	
	62 20.8	07.4	210 15.6	11.4	18 51.6	12.2	56.8	20	05 03	05 28	05 50	19 37	20 19	21 05	21 55	
	77 21.0	08.4	224 46.0	11.5	19 03.8	12.0	56.8	N 10	05 03	05 28	05 49	19 53	20 39	21 28	22 19	
	92 21.2	S 2 09.4	239 16.5	11.3	N 19 15.8	12.0	56.7	0	05 02	05 26	05 47	20 08	20 58	21 49	22 42	
	107 21.4	10.4	253 46.8	11.4	19 27.8	11.8	56.7	S 10	05 00	05 24	05 45	20 23	21 16	22 10	23 04	
MAY 14	122 21.6	11.3	268 17.2	11.3	19 39.6	11.7	56.7	20	04 56	05 21	05 44	20 39	21 36	22 33	23 29	
	137 21.8	12.3	282 47.5	11.3	19 51.3	11.7	56.6	30	04 49	05 17	05 41	20 57	22 00	23 00	23 57	
	152 22.0	13.3	297 17.8	11.2	20 03.0	11.5	56.6	35	04 45	05 15	05 40	21 08	22 13	23 16	24 14	
	167 22.2	14.3	311 48.0	11.2	20 14.5	11.4	56.6	40	04 39	05 11	05 38	21 21	22 29	23 35	24 34	
	182 22.4	S 2 15.2	326 18.2	11.1	N 20 25.9	11.3	56.5	45	04 32	05 07	05 36	21 36	22 49	23 57	24 58	
	197 22.6	16.2	340 48.3	11.1	20 37.2	11.1	56.5	S 50	04 23	05 02	05 34	21 55	23 13	24 26	00 26	
	212 22.9	17.2	355 18.4	11.1	20 48.3	11.1	56.5	52	04 19	04 59	05 33	22 03	23 24	24 40	00 40	
	227 23.1	18.1	9 48.5	11.0	20 59.4	10.9	56.4	54	04 14	04 56	05 32	22 13	23 38	24 56	00 56	
	242 23.3	19.1	24 18.5	10.9	21 10.3	10.8	56.4	56	04 08	04 53	05 31	22 24	23 53	25 16	01 16	
	257 23.5	20.1	38 48.4	11.0	21 21.1	10.7	56.4	58	04 02	04 50	05 29	22 37	24 11	00 11	01 40	
MON 10	272 23.7	S 2 21.1	53 18.4	10.9	N 21 31.8	10.6	56.3	S 60	03 54	04 46	05 28	22 52	24 34	00 34	02 13	
	287 23.9	22.0	67 48.3	10.8	21 42.4	10.5	56.3	Lat.		Sun-set	Twilight		Moonset			
	302 24.1	23.0	82 18.1	10.8	21 52.9	10.4	56.3			Civil	Naut.	28	29	30	I	
	317 24.3	24.0	96 47.9	10.8	22 03.3	10.2	56.3	°	h m	h m	h m	h m	h m	h m	h m	
	332 24.5	24.9	111 17.7	10.7	22 13.5	10.1	56.2	N 72	17 30	18 37	20 00	□	□	□	□	
	347 24.7	25.9	125 47.4	10.7	22 23.6	10.0	56.2	N 70	17 32	18 33	19 47	12 02	□	□	□	
	2 24.9	S 2 26.9	140 17.1	10.6	N 22 33.6	9.9	56.2	68	17 34	18 29	19 36	11 20	□	□	□	
	17 25.1	27.9	154 46.7	10.6	22 43.5	9.7	56.1	66	17 36	18 27	19 27	10 51	13 20	□	□	
	32 25.3	28.8	169 16.3	10.6	22 53.2	9.6	56.1	64	17 37	18 24	19 20	10 30	12 33	□	□	
	47 25.5	29.8	183 45.9	10.5	23 02.8	9.5	56.1	62	17 38	18 22	19 15	10 13	12 03	13 59	□	
TUESDAY 14	62 25.8	30.8	198 15.4	10.5	23 12.3	9.4	56.1	60	17 40	18 21	19 10	09 59	11 40	13 21	14 54	
	77 26.0	31.8	212 44.9	10.4	23 21.7	9.2	56.0	N 58	17 41	18 19	19 05	09 47	11 22	12 54	14 17	
	92 26.2	S 2 32.7	227 14.3	10.4	N 23 30.9	9.2	56.0	56	17 41	18 18	19 02	09 37	11 07	12 33	13 50	
	107 26.4	33.7	241 43.7	10.4	23 40.1	9.0	56.0	54	17 42	18 17	18 59	09 28	10 54	12 16	13 29	
	122 26.6	34.7	256 13.1	10.3	23 49.1	8.8	55.9	52	17 43	18 16	18 56	09 20	10 42	12 01	13 12	
	137 26.8	35.6	270 42.4	10.2	23 57.9	8.7	55.9	50	17 44	18 16	18 53	09 13	10 32	11 48	12 57	
	152 27.0	36.6	285 11.6	10.3	24 06.6	8.7	55.9	45	17 45	18 14	18 48	08 57	10 11	11 22	12 27	
	167 27.2	37.6	299 40.9	10.2	24 15.3	8.4	55.9	N 40	17 46	18 13	18 45	08 45	09 54	11 01	12 04	
	182 27.4	S 2 38.6	314 10.1	10.1	N 24 23.7	8.4	55.8	35	17 47	18 13	18 42	08 34	09 40	10 44	11 45	
	197 27.6	39.5	328 39.2	10.2	24 32.1	8.2	55.8	30	17 48	18 12	18 40	08 25	09 27	10 29	11 28	
WEDNESDAY 18	212 27.8	40.5	343 08.4	10.1	24 40.3	8.1	55.8	20	17 50	18 12	18 38	08 09	09 06	10 04	11 00	
	227 28.0	41.5	357 37.5	10.0	24 48.4	7.9	55.7	N 10	17 52	18 13	18 37	07 55	08 48	09 42	10 37	
	242 28.2	42.4	12 06.5	10.0	24 56.3	7.8	55.7	0	17 54	18 14	18 38	07 42	08 31	09 22	10 14	
	257 28.4	43.4	26 35.5	10.0	25 04.1	7.7	55.7	S 10	17 55	18 17	18 41	07 29	08 14	09 02	09 52	
	272 28.6	S 2 44.4	41 04.5	10.0	N 25 11.8	7.6	55.7	20	17 58	18 20	18 45	07 16	07 57	08 41	09 28	
	287 28.8	45.4	55 33.5	9.9	25 19.4	7.4	55.6	30	18 00	18 24	18 52	07 00	07 36	08 16	09 01	
	302 29.0	46.3	70 02.4	9.8	25 26.8	7.3	55.6	35	18 02	18 27	18 57	06 51	07 24	08 01	08 45	
	317 29.2	47.3	84 31.2	9.9	25 34.1	7.1	55.6	40	18 03	18 30	19 02	06 41	07 10	07 45	08 26	
	332 29.5	48.3	99 00.1	9.8	25 41.2	7.0	55.6	45	18 05	18 35	19 10	06 29	06 54	07 25	08 03	
	347 29.7	49.2	113 28.9	9.8	25 48.2	6.9	55.5	S 50	18 08	18 40	19 19	06 15	06 34	07 00	07 33	
THURSDAY 22	2 29.9	S 2 50.2	127 57.7	9.7	N 25 55.1	6.7	55.5	52	18 09	18 43	19 23	06 08	06 25	06 47	07 19	
	17 30.1	51.2	142 26.4	9.7	26 01.8	6.7	55.5	54	18 10	18 46	19 29	06 01	06 14	06 34	07 02	
	32 30.3	52.2	156 55.1	9.7	26 08.5	6.4	55.5	56	18 11	18 49	19 34	05 52	06 03	06 18	06 42	
	47 30.5	53.1	171 23.8	9.7	26 14.9	6.3	55.4	58	18 13	18 53	19 41	05 43	05 49	05 59	06 18	
	62 30.7	54.1	185 52.5	9.6	26 21.2	6.2	55.4	S 60	18 15	18 57	19 49	05 33	05 33	05 36	05 44	
	77 30.9	55.1	200 21.1	9.6	26 27.4	6.1	55.4	Day		SUN		MOON				
	92 31.1	S 2 56.0	214 49.7	9.6	N 26 33.5	5.9	55.4			Eqn. of Time	Mer. Pass.	Mer. Upper	Pass. Lower	Age	Phase	
	107 31.3	57.0	229 18.3	9.6	26 39.4	5.7	55.3			00h	12h					
	1220</															

G.M.T.		ARIES		VENUS -3.4		MARS 0.0		JUPITER -1.2		SATURN +0.2		STARS			
d	h	G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
I	00	9 33.0	207 58.5	N 9 02.8	92 44.1	S 25 54.2	175 47.3	S 4 41.9	333 26.9	N 11 29.0			Acamar	315 42.8	S 40 25.2
	01	24 35.5	222 58.1	01.7	107 44.8	54.0	190 49.2	42.1	348 29.5	28.9			Achernar	335 50.3	S 57 23.2
	02	39 38.0	237 57.7	9 00.6	122 45.5	53.9	205 51.2	42.3	3 32.1	28.9			Acrux	173 47.3	S 62 55.8
	03	54 40.4	252 57.2	8 59.5	137 46.2	53.8	220 53.2	42.5	18 34.7	28.8			Adhara	255 38.5	S 28 55.4
	04	69 42.9	267 56.8	58.5	152 46.9	53.7	235 55.1	42.7	33 37.3	28.8			Aldebaran	291 27.1	N 16 27.2
WEDNESDAY	05	84 45.4	282 56.4	57.4	167 47.5	53.6	250 57.1	43.0	48 40.0	28.7					
	06	99 47.8	297 55.9	N 8 56.3	182 48.2	S 25 53.4	265 59.1	S 4 43.2	63 42.6	N 11 28.7			Allioth	166 49.8	N 56 07.5
	07	114 50.3	312 55.5	55.2	197 48.9	53.3	281 01.0	43.4	78 45.2	28.6			Alkaid	153 25.0	N 49 27.4
	08	129 52.7	327 55.1	54.1	212 49.5	53.2	296 03.0	43.6	93 47.8	28.5			Al Na'ir	28 24.4	S 47 06.1
	09	144 55.2	342 54.6	53.0	227 50.2	53.1	311 05.0	43.8	108 50.4	28.5			Alnilam	276 19.7	S 1 12.2
THURSDAY	10	159 57.7	357 54.2	52.0	242 50.9	52.9	326 06.9	44.0	123 53.0	28.4			Alphard	218 28.7	S 8 31.3
	11	175 00.1	12 53.8	50.9	257 51.6	52.8	341 08.9	44.2	138 55.7	28.4					
	12	190 02.6	27 53.4	N 8 49.8	272 52.2	S 25 52.7	356 10.9	S 4 44.4	153 58.3	N 11 28.3			Alphecca	126 39.1	N 26 49.0
	13	205 05.1	42 52.9	48.7	287 52.9	52.6	11 12.8	44.6	169 00.9	28.3			Alpheratz	358 17.4	N 28 55.6
	14	220 07.5	57 52.5	47.6	302 53.6	52.4	26 14.8	44.8	184 03.5	28.2			Altair	62 40.3	N 8 47.3
FRIDAY	15	235 10.0	72 52.1	46.5	317 54.3	52.3	41 16.7	45.0	199 06.1	28.1			Ankaa	353 47.5	S 42 28.1
	16	250 12.5	87 51.6	45.4	332 54.9	52.2	56 18.7	45.3	214 08.7	28.1			Antares	113 07.0	S 26 22.1
	17	265 14.9	102 51.2	44.3	347 55.6	52.1	71 20.7	45.5	229 11.4	28.0					
	18	280 17.4	117 50.8	N 8 43.3	2 56.3	S 25 51.9	86 22.6	S 4 45.7	244 14.0	N 11 28.0			Arcturus	146 26.0	N 19 20.4
	19	295 19.9	132 50.3	42.2	17 56.9	51.8	101 24.6	45.9	259 16.6	27.9			Atria	108 38.8	S 68 58.8
SATURDAY	20	310 22.3	147 49.9	41.1	32 57.6	51.7	116 26.6	46.1	274 19.2	27.8			Avior	234 32.0	S 59 24.3
	21	325 24.8	162 49.5	40.0	47 58.3	51.6	131 28.5	46.3	289 21.8	27.8			Bellatrix	279 07.3	N 6 19.7
	22	340 27.2	177 49.1	38.9	62 59.0	51.4	146 30.5	46.5	304 24.4	27.7			Betelgeuse	271 36.9	N 7 24.4
	23	355 29.7	192 48.6	37.8	77 59.6	51.3	161 32.5	46.7	319 27.1	27.7					
	24														
SUNDAY	00	10 32.2	207 48.2	N 8 36.7	93 00.3	S 25 51.2	176 34.4	S 4 46.9	334 29.7	N 11 27.6			Canopus	264 10.8	S 52 40.2
	01	25 34.6	222 47.8	35.6	108 01.0	51.0	191 36.4	47.1	349 32.3	27.6			Capella	281 23.0	N 45 58.2
	02	40 37.1	237 47.4	34.5	123 01.6	50.9	206 38.4	47.3	4 34.9	27.5			Deneb	49 53.9	N 45 10.5
	03	55 39.6	252 46.9	33.4	138 02.3	50.8	221 40.3	47.6	19 37.5	27.5			Denebola	183 07.5	N 14 44.6
	04	70 42.0	267 46.5	32.3	153 03.0	50.7	236 42.3	47.8	34 40.2	27.4			Diphda	349 28.5	S 18 09.0
MONDAY	05	85 44.5	282 46.1	31.2	168 03.6	50.5	251 44.3	48.0	49 42.8	27.3					
	06	100 47.0	297 45.6	N 8 30.2	183 04.3	S 25 50.4	266 46.2	S 4 48.2	64 45.4	N 11 27.3			Dubhe	194 32.2	N 61 54.8
	07	115 49.4	312 45.2	29.1	198 05.0	50.3	281 48.2	48.4	79 48.0	27.2			Elmath	278 54.2	N 28 35.1
	08	130 51.9	327 44.8	28.0	213 05.6	50.1	296 50.1	48.6	94 50.6	27.2			Eltanin	91 01.6	N 51 29.7
	09	145 54.3	342 44.4	26.9	228 06.3	50.0	311 52.1	48.8	109 53.3	27.1			Enif	34 19.3	N 9 44.2
TUESDAY	10	160 56.8	357 43.9	25.8	243 07.0	49.9	326 54.1	49.0	124 55.9	27.0			Fomalhaut	15 59.8	S 29 47.0
	11	175 59.3	12 43.5	24.7	258 07.6	49.7	341 56.0	49.2	139 58.5	27.0					
	12	191 01.7	27 43.1	N 8 23.6	273 08.3	S 25 49.6	356 58.0	S 4 49.4	155 01.1	N 11 26.9			Gacrux	172 38.6	S 56 56.6
	13	206 04.2	42 42.7	22.5	288 09.0	49.5	12 00.0	49.7	170 03.7	26.9			Genah	176 26.6	S 17 22.3
	14	221 06.7	57 42.2	21.4	303 09.6	49.3	27 01.9	49.9	185 06.4	26.8			Hadar	149 35.7	S 60 13.8
WEDNESDAY	15	236 09.1	72 41.8	20.3	318 10.3	49.2	42 03.9	50.1	200 09.0	26.8			Hamal	328 37.7	N 23 19.4
	16	251 11.6	87 41.4	19.2	333 11.0	49.1	57 05.9	50.3	215 11.6	26.7			Kaus Aust.	84 27.5	S 34 24.2
	17	266 14.1	102 41.0	18.1	348 11.6	48.9	72 07.8	50.5	230 14.2	26.6					
	18	281 16.5	117 40.5	N 8 17.0	3 12.3	S 25 48.8	87 09.8	S 4 50.7	245 16.8	N 11 26.6			Kochab	137 18.9	N 74 16.8
	19	296 19.0	132 40.1	15.9	18 13.0	48.7	102 11.8	50.9	260 19.5	26.5			Markab	14 10.9	N 15 02.7
THURSDAY	20	311 21.4	147 39.7	14.8	33 13.6	48.5	117 13.7	51.1	275 22.1	26.5			Menkar	314 49.3	N 3 58.6
	21	326 23.9	162 39.3	13.7	48 14.3	48.4	132 15.7	51.3	290 24.7	26.4			Menkent	148 47.0	S 36 13.4
	22	341 26.4	177 38.8	12.6	63 15.0	48.2	147 17.6	51.5	305 27.3	26.4			Miaplacidus	221 47.7	S 69 35.2
	23	356 28.8	192 38.4	11.5	78 15.6	48.1	162 19.6	51.7	320 29.9	26.3					
	24														
FRIDAY	00	11 31.3	207 38.0	N 8 10.4	93 16.3	S 25 48.0	177 21.6	S 4 51.9	335 32.6	N 11 26.2			Mirfak	309 27.4	N 49 45.3
	01	26 33.8	222 37.6	09.3	108 16.9	47.8	192 23.5	52.2	350 35.2	26.2			Nunki	76 39.1	S 26 20.3
	02	41 36.2	237 37.2	08.2	123 17.6	47.7	207 25.5	52.4	5 37.8	26.1			Peacock	54 10.6	S 56 50.3
	03	56 38.7	252 36.7	07.1	138 18.3	47.6	222 27.5	52.6	20 40.4	26.1			Pollux	244 08.0	N 28 06.1
	04	71 41.2	267 36.3	06.0	153 18.9	47.4	237 29.4	52.8	35 43.0	26.0			Procyon	245 34.2	N 5 18.5
SATURDAY	05	86 43.6	282 35.9	04.9	168 19.6	47.3	252 31.4	53.0	50 45.7	25.9					
	06	101 46.1	297 35.5	N 8 03.8	183 20.3	S 25 47.1	267 33.4	S 4 53.2	65 48.3	N 11 25.9			Rasalhague	96 37.1	N 12 34.9
	07	116 48.5	312 35.0	02.7	198 20.9	47.0	282 35.3	53.4	80 50.9	25.8			Regulus	208 18.7	N 12 07.1
	08	131 51.0	327 34.6	01.5	213 21.6	46.9	297 37.3	53.6	95 53.5	25.8			Rigel	281 43.6	S 8 13.8
	09	146 53.5	342 34.2	8 00.4	228 22.2	46.7	312 39.3	53.8	110 56.2	25.7			Rigel Kent.	140 37.6	S 60 42.7
SUNDAY	10	161 55.9	357 33.8	7 59.3	243 22.9	46.6	327 41.2	54.0	125 58.8	25.7			Sabik	102 50.5	S 15 41.4
	11	176 58.4	12 33.4	58.2	258 23.6	46.4	342 43.2	54.3	141 01.4	25.6					
	12	192 00.9	27 32.9	N 7 51.7	273 24.2	S 25 46.3	357 45.1	S 4 54.5	156 04.0	N 11 25.5			Schedar	350 18.0	N 56 22.4
	13	207 03.3	42 32.5	56.0	288 24.9	46.1	12 47.1	54.7	171 06.6	25.5			Shaula	97 06.8	S 37 05.2
	14	222 05.8	57 32.1	54.9	303 25.5	46.0	27 49.1	54.9	186 09.3	25.4			Sirius	259 02.8	S 16 40.1
MONDAY	15	237 08.3	72 31.7	53.8	318 26.2	45.9	42 51.0	55.1	201 11.9	25.4			Spica	159 06.4	S 11 00.2
	16	252 10.7	87 31.3	52.7	333 26.9	45.7	57 53.0	55.3	216 14.5	25.3			Suhail	223 17.1	S 43 18.2
	17	267 13.2	102 30.8	51.6	348 27.5	45.6	72 55.0	55.5	231 17.1	25.3					
	18	282 15.7	117 30.4	N 7 50.5	3 28.2	S 25 45.4	87 56.9	S 4 55.7	246 19.8	N 11 25.2			Vega	81 01.3	N 38 45.4
	19	297 18.1	132 30.0	49.4	18 28.8	45.3	102 58.9	55.9	261 22.4	25.1			Zuben'ubi	137 42.3	S 15 55.0
TUESDAY	20	312 20.6	147 29.6	48.2	33 29.5	45.1	118 00.9	56.1	276 25.0	25.1					
	21	327 23.0	162 29.2	47.1	48 30.1	45.0	133 02.8	56.3	291 27.6	25.0					
	22	342 25.5	177 28.7	46.0	63 30.8	44.8	148 04.8	56.6	306 30.3	25.0			Venus	197 16.0	10 09
	23	357 28.0	192 28.3	44.9	78 31.5	44.7	163 06.7	56.8	321 32.9	24.9			Mars	82 28.1	17 47
	24												Jupiter	166 02.2	12 12
Mer. Pass. 23 14.0		v -0.4 d 1.1		v 0.7 d 0.1		v 2.0 d 0.2		v 2.6 d 0.1				Saturn		323 57.5	1 42

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise				
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.		Naut.	Civil		1	2	3	4	
d	h	°	'	°	'	°	'	'	°	h	m	h	m	h	m	h	m
100102030405		182 32.3	S 3 01.9	301 40.8	9.5	N 27 06.8	5.1	55.2	N 72	03 53	05 15	06 22	□	□	□	□	
	01	197 32.5	02.8	316 09.3	9.4	27 11.9	4.9	55.2	N 70	04 05	05 18	06 18	□	□	□	□	
	02	212 32.7	03.8	330 37.7	9.4	27 16.8	4.8	55.2	68	04 14	05 20	06 15	□	□	□	□	
	03	227 32.9	04.8	345 06.1	9.4	27 21.6	4.6	55.1	66	04 21	05 22	06 13	□	□	□	□	
	04	242 33.1	05.7	359 34.5	9.3	27 26.2	4.5	55.1	64	04 27	05 23	06 11	□	□	□	20 13	
WEDNESDAY060708091011121314151617181920212223		257 33.3	06.7	14 02.8	9.4	27 30.7	4.4	55.1	62	04 33	05 25	06 09	□	□	19 04	21 03	
	05	272 33.5	S 3 07.7	28 31.2	9.3	N 27 35.1	4.2	55.1	60	04 37	05 26	06 07	17 59	18 43	20 01	21 34	
	06	287 33.7	08.7	42 59.5	9.3	27 39.3	4.1	55.0	N 58	04 41	05 27	06 06	18 36	19 24	20 34	21 57	
	07	302 33.9	09.6	57 27.8	9.3	27 43.4	3.9	55.0	56	04 44	05 27	06 04	19 03	19 52	20 58	22 16	
	08	317 34.1	10.6	71 56.1	9.3	27 47.3	3.8	55.0	54	04 47	05 28	06 03	19 24	20 14	21 18	22 32	
091011121314151617181920212223		332 34.3	11.6	86 24.4	9.3	27 51.1	3.6	55.0	52	04 49	05 28	06 02	19 41	20 32	21 34	22 45	
	10	347 34.5	12.5	100 52.7	9.3	27 54.7	3.5	55.0	50	04 51	05 29	06 01	19 56	20 47	21 48	22 57	
	11	2 34.7	S 3 13.5	115 21.0	9.2	N 27 58.2	3.4	54.9	45	04 55	05 30	05 59	20 27	21 18	22 17	23 21	
	12	17 34.9	14.5	129 49.2	9.3	28 01.6	3.2	54.9	N 40	04 58	05 30	05 57	20 50	21 42	22 39	23 41	
	13	32 35.1	15.4	144 17.5	9.2	28 04.8	3.0	54.9	35	05 01	05 30	05 55	21 10	22 02	22 58	23 57	
14151617181920212223		47 35.3	16.4	158 45.7	9.3	28 07.8	3.0	54.9	30	05 02	05 30	05 54	21 26	22 18	23 14	24 11	
	15	62 35.5	17.4	173 14.0	9.2	28 10.8	2.7	54.9	20	05 04	05 29	05 51	21 55	22 47	23 41	24 35	
	16	77 35.7	18.4	187 42.2	9.2	28 13.5	2.7	54.8	N 10	05 03	05 28	05 49	22 19	23 11	24 04	00 04	
	17	92 35.9	S 3 19.3	202 10.4	9.3	N 28 16.2	2.5	54.8	0	05 01	05 25	05 46	22 42	23 34	24 25	00 25	
	18	107 36.1	20.3	216 38.7	9.2	28 18.7	2.3	54.8	S 10	04 58	05 23	05 44	23 04	23 57	24 47	00 47	
1920212223		122 36.3	21.3	231 06.9	9.2	28 21.0	2.2	54.8	20	04 53	05 19	05 41	23 29	24 21	00 21	01 10	
	20	137 36.5	22.2	245 35.1	9.3	28 23.2	2.1	54.8	30	04 46	05 14	05 38	23 57	24 50	00 50	01 36	
	21	152 36.7	23.2	260 03.4	9.2	28 25.3	1.9	54.8	35	04 40	05 10	05 36	24 14	00 14	01 07	01 52	
	22	167 36.9	24.2	274 31.6	9.2	28 27.2	1.7	54.7	40	04 34	05 06	05 33	24 34	00 34	01 26	02 10	
	23	182 37.1	S 3 25.1	288 59.8	9.3	N 28 28.9	1.7	54.7	45	04 26	05 01	05 31	24 58	00 58	01 50	02 32	
200102030405060708091011121314151617181920212223		197 37.3	26.1	303 28.1	9.2	28 30.6	1.4	54.7	S 50	04 16	04 55	05 28	00 26	01 30	02 21	02 59	
	01	212 37.5	27.1	317 56.3	9.3	28 32.0	1.4	54.7	52	04 11	04 52	05 26	00 40	01 45	02 36	03 13	
	02	227 37.7	28.1	332 24.6	9.2	28 33.4	1.2	54.7	54	04 06	04 49	05 25	00 56	02 03	02 54	03 29	
	03	242 37.9	29.0	346 52.8	9.3	28 34.6	1.0	54.7	56	03 59	04 45	05 23	01 16	02 25	03 15	03 47	
	04	257 38.1	30.0	1 21.1	9.3	28 35.6	0.9	54.6	58	03 52	04 41	05 21	01 40	02 54	03 43	04 09	
05060708091011121314151617181920212223		272 38.3	S 3 31.0	15 49.4	9.3	N 28 36.5	0.8	54.6	S 60	03 44	04 36	05 18	02 13	03 37	04 22	04 38	
	05	287 38.5	31.9	30 17.7	9.3	28 37.3	0.6	54.6									
	06	302 38.7	32.9	44 46.0	9.3	28 37.9	0.5	54.6	Lat.	Sun-set	Twilight		Moonset				
	07	317 38.9	33.9	59 14.3	9.3	28 38.4	0.3	54.6			Civil	Naut.	1	2	3	4	
	08	332 39.1	34.8	73 42.6	9.4	28 38.7	0.2	54.6	°	h	m	h	m	h	m	h	m
091011121314151617181920212223		347 39.3	35.8	88 11.0	9.4	28 38.9	0.0	54.6	N 72	17 15	18 21	19 42	□	□	□	□	
	11	2 39.5	S 3 36.8	102 39.4	9.3	N 28 38.9	0.1	54.5	N 70	17 18	18 19	19 31	□	□	□	□	
	12	17 39.7	37.7	117 07.7	9.4	28 38.8	0.2	54.5	68	17 22	18 17	19 22	□	□	□	□	
	13	32 39.9	38.7	131 36.1	9.5	28 38.6	0.4	54.5	66	17 24	18 15	19 15	□	□	□	□	
	14	47 40.1	39.7	146 04.6	9.4	28 38.2	0.5	54.5	64	17 27	18 14	19 09	□	□	□	18 01	
151617181920212223		62 40.3	40.6	160 33.0	9.5	28 37.7	0.6	54.5	62	17 29	18 13	19 04	□	□	17 26	17 10	
	16	77 40.5	41.6	175 01.5	9.5	28 37.1	0.9	54.5	60	17 31	18 12	19 00	14 54	15 59	16 28	16 38	
	17	92 40.7	S 3 42.6	189 30.0	9.5	N 28 36.2	0.9	54.5	N 58	17 32	18 11	18 57	14 17	15 18	15 55	16 15	
	18	107 40.9	43.5	203 58.5	9.5	28 35.3	1.1	54.4	56	17 34	18 10	18 54	13 50	14 50	15 31	15 56	
	19	122 41.1	44.5	218 27.0	9.6	28 34.2	1.2	54.4	54	17 35	18 10	18 51	13 29	14 28	15 11	15 39	
20212223		137 41.3	45.5	232 55.6	9.6	28 33.0	1.4	54.4	52	17 36	18 09	18 49	13 12	14 10	14 54	15 25	
	21	152 41.5	46.5	247 24.2	9.6	28 31.6	1.5	54.4	50	17 37	18 09	18 47	12 57	13 55	14 40	15 13	
	22	167 41.7	47.4	261 52.8	9.7	28 30.1	1.6	54.4	45	17 40	18 09	18 42	12 27	13 24	14 11	14 48	
	23	182 41.9	S 3 48.4	276 21.5	9.7	N 28 28.5	1.8	54.4	N 40	17 41	18 08	18 40	12 04	13 00	13 48	14 28	
	00	197 42.1	49.4	290 50.2	9.7	28 26.7	1.9	54.4	35	17 43	18 08	18 38	11 45	12 40	13 29	14 11	
0102030405060708091011121314151617181920212223		212 42.3	50.3	305 18.9	9.8	28 24.8	2.1	54.4	30	17 45	18 09	18 36	11 28	12 23	13 13	13 56	
	02	227 42.5	51.3	319 47.7	9.8	28 22.7	2.2	54.4	20	17 48	18 10	18 35	11 00	11 55	12 45	13 31	
	03	242 42.7	52.3	334 16.5	9.8	28 20.5	2.3	54.4	N 10	17 50	18 11	18 36	10 37	11 30	12 21	13 09	
	04	257 42.9	53.2	348 45.3	9.9	28 18.2	2.4	54.3	0	17 53	18 13	18 37	10 14	11 07	11 59	12 49	
	05	272 43.1	S 3 54.2	3 14.2	9.9	N 28 15.8	2.6	54.3	S 10	17 55	18 16	18 41	09 52	10 44	11 37	12 29	
060708091011121314151617181920212223		287 43.2	55.2	17 43.1	9.9	28 13.2	2.8	54.3	20	17 58	18 20	18 46	09 28	10 20	11 13	12 07	
	07	302 43.4	56.1	32 12.0	10.0	28 10.4	2.9	54.3	30	18 02	18 26	18 54	09 01	09 51	10 45	11 41	
	08	317 43.6	57.1	46 41.0	10.0	28 07.5	3.0	54.3	35	18 04	18 29	18 59	08 45	09 34	10 28	11 26	
	09	332 43.8	58.1	61 10.0	10.0	28 04.5	3.1	54.3	40	18 06	18 33	19 06	08 26	09 14	10 09	11 09	
	10	347 44.0	59.0	75 39.0	10.1	28 01.4	3.3	54.3	45	18 09	18 39	19 14	08 03	08 50	09 45	10 47	
DAILY121314151617181920212223		2 44.2	S 4 00.0	90 08.1	10.2	N 27 58.1	3.4	54.3	S 50	18 12	18 45	19 24	07 33	08 18	09 15	10 20	
	12	17 44.4	01.0	104 37.3	10.2	27 54.7	3.5	54.3	52	18 14	18 48	19 29	07 19	08 03	09 00	10 07	
	13	32 44.6	01.9	119 06.5	10.2	27 51.2	3.7	54.3	54	18 16	18 51	19 35	07 02	07 44	08 42	09 52	
	14	47 44.8	02.9	133 35.7	10.3	27 47.5	3.8	54.3	56	18 17	18 55	19 41	06 42	07 22	08 21	09 34	
	15	62 45.0	03.9	148 05.0	10.3	27 43.7	3.9	54.3	58	18 19	19 00	19 49	06 18	06 54	07 5		

G.M.T.	ARIES			VENUS -3.4			MARS +0.1			JUPITER -1.2			SATURN +0.2			STARS		
	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "
4 00	12 30.4	207 27.9	N 7 43.8	93 32.1	S 25 44.6	178 08.7	S 4 57.0	336 35.5	N 11 24.8	Acamar	315 42.8	S 40 25.2						
01	27 32.9	222 27.5	42.7	108 32.8	44.4	193 10.7	57.2	351 38.1	24.8	Achernar	335 50.3	S 47 23.2						
02	42 35.4	237 27.1	41.6	123 33.4	44.3	208 12.6	57.4	6 40.8	24.7	Acrux	173 47.3	S 62 55.8						
03	57 37.8	252 26.7	40.5	138 34.1	44.1	223 14.6	57.6	21 43.4	24.7	Adhara	255 38.5	S 28 55.4						
04	72 40.3	267 26.2	39.3	153 34.7	44.0	238 16.6	57.8	36 46.0	24.6	Aldebaran	291 27.1	N 16 27.2						
05	87 42.8	282 25.8	38.2	168 35.4	43.8	253 18.5	58.0	51 48.6	24.6									
06	102 45.2	297 25.4	N 7 37.1	183 36.1	S 25 43.7	268 20.5	S 4 58.2	66 51.2	N 11 24.5	Alioth	166 49.8	N 56 07.4						
07	117 47.7	312 25.0	36.0	198 36.7	43.5	283 22.4	58.4	81 53.9	24.4	Alkaid	153 25.0	N 49 27.9						
S 08	132 50.2	327 24.6	34.9	213 37.4	43.4	298 24.4	58.7	96 56.5	24.4	Al Na'ir	28 24.5	S 47 06.6						
A 09	147 52.6	342 24.2	33.8	228 38.0	43.2	313 26.4	58.9	111 59.1	24.3	Alnilam	276 19.7	S 1 12.9						
T 10	162 55.1	357 23.7	32.7	243 38.7	43.1	328 28.3	59.1	127 01.7	24.3	Alphard	218 28.7	S 8 31.4						
U 11	177 57.5	12 23.3	31.5	258 39.3	42.9	343 30.3	59.3	142 04.4	24.2									
R 12	193 00.0	27 22.9	N 7 30.4	273 40.0	S 25 42.8	358 32.3	S 4 59.5	157 07.0	N 11 24.1	Alphecca	126 39.1	N 26 49.0						
D 13	208 02.5	42 22.5	29.3	288 40.6	42.6	13 34.2	59.7	172 09.6	24.1	Alpheratz	358 17.4	N 28 55.6						
A 14	223 04.9	57 22.1	28.2	303 41.3	42.5	28 36.2	4 59.9	187 12.2	24.0	Altair	62 40.3	N 8 47.3						
Y 15	238 07.4	72 21.7	27.1	318 42.0	42.3	43 38.2	5 00.1	202 14.9	24.0	Ankaa	353 47.5	S 42 28.1						
16	253 09.9	87 21.2	25.9	333 42.6	42.2	58 40.1	00.3	217 17.5	23.9	Antares	113 07.0	S 26 22.1						
17	268 12.3	102 20.8	24.8	348 43.3	42.0	73 42.1	00.5	232 20.1	23.8									
18	283 14.8	117 20.4	N 7 23.7	3 43.9	S 25 41.9	88 44.0	S 5 00.7	247 22.7	N 11 23.8	Arcturus	146 26.0	N 19 20.4						
19	298 17.3	132 20.0	22.6	18 44.6	41.7	103 46.0	01.0	262 25.4	23.7	Atria	108 38.8	S 68 58.8						
20	313 19.7	147 19.6	21.5	33 45.2	41.6	118 48.0	01.2	277 28.0	23.7	Avior	234 32.0	S 59 24.3						
21	328 22.2	162 19.2	20.3	48 45.9	41.4	133 49.9	01.4	292 30.6	23.6	Bellatrix	279 07.2	N 6 19.7						
22	343 24.7	177 18.7	19.2	63 46.5	41.2	148 51.9	01.6	307 33.3	23.5	Betelgeuse	271 36.9	N 7 24.4						
23	358 27.1	192 18.3	18.1	78 47.2	41.1	163 53.9	01.8	322 35.9	23.5									
5 00	13 29.6	207 17.9	N 7 17.0	93 47.8	S 25 40.9	178 55.8	S 5 02.0	337 38.5	N 11 23.4	Canopus	264 10.7	S 52 40.2						
01	28 32.0	222 17.5	15.8	108 48.5	40.8	193 57.8	02.2	352 41.1	23.4	Capella	281 23.0	N 45 58.2						
02	43 34.5	237 17.1	14.7	123 49.1	40.6	208 59.7	02.4	7 43.8	23.3	Deneb	49 53.9	N 45 10.5						
03	58 37.0	252 16.7	13.6	138 49.8	40.5	224 01.7	02.6	22 46.4	23.2	Denebola	183 07.5	N 14 44.6						
04	73 39.4	267 16.3	12.5	153 50.4	40.3	239 03.7	02.8	37 49.0	23.2	Diphda	349 28.5	S 18 08.9						
05	88 41.9	282 15.9	11.4	168 51.1	40.2	254 05.6	03.0	52 51.6	23.1									
06	103 44.4	297 15.4	N 7 10.2	183 51.7	S 25 40.0	269 07.6	S 5 03.2	67 54.3	N 11 23.1	Dubhe	194 32.1	N 61 54.8						
07	118 46.8	312 15.0	09.1	198 52.4	39.8	284 09.6	03.5	82 56.9	23.0	Elath	278 54.2	N 28 35.1						
08	133 49.3	327 14.6	08.0	213 53.0	39.7	299 11.5	03.7	97 59.5	23.0	Eltanin	91 01.6	N 51 29.7						
S 09	148 51.8	342 14.2	06.9	228 53.7	39.5	314 13.5	03.9	113 02.1	22.9	Enif	34 19.3	N 9 44.2						
U 10	163 54.2	357 13.8	05.7	243 54.3	39.4	329 15.4	04.1	128 04.8	22.8	Fomalhaut	15 59.8	S 29 47.0						
N 11	178 56.7	12 13.4	04.6	258 55.0	39.2	344 17.4	04.3	143 07.4	22.8									
D 12	193 59.2	27 13.0	N 7 03.5	273 55.6	S 25 39.0	359 19.4	S 5 04.5	158 10.0	N 11 22.7	Gacrux	172 38.6	S 56 56.6						
A 13	209 01.6	42 12.6	02.3	288 56.3	38.9	14 21.3	04.7	173 12.7	22.7	Gienah	176 26.6	S 17 22.3						
Y 14	224 04.1	57 12.1	01.2	303 56.9	38.7	29 23.3	04.9	188 15.3	22.6	Hadar	149 35.7	S 60 13.8						
15	239 06.5	72 11.7	7 00.1	318 57.6	38.6	44 25.3	05.1	203 17.9	22.5	Hamal	328 37.7	N 23 19.4						
16	254 09.0	87 11.3	6 59.0	333 58.2	38.4	59 27.2	05.3	218 20.5	22.5	Kaus Aust.	84 27.5	S 34 24.2						
17	269 11.5	102 10.9	57.8	348 58.9	38.2	74 29.2	05.5	233 23.2	22.4									
18	284 13.9	117 10.5	N 6 56.7	3 59.5	S 25 38.1	89 31.1	S 5 05.8	248 25.8	N 11 22.4	Kochab	137 19.0	N 74 16.8						
19	299 16.4	132 10.1	55.6	19 00.2	37.9	104 33.1	06.0	263 28.4	22.3	Markab	14 10.9	N 15 02.7						
20	314 18.9	147 09.7	54.4	34 00.8	37.8	119 35.1	06.2	278 31.1	22.2	Menkar	314 49.3	N 3 58.6						
21	329 21.3	162 09.3	53.3	49 01.4	37.6	134 37.0	06.4	293 33.7	22.2	Menkent	148 47.0	S 36 13.4						
22	344 23.8	177 08.9	52.2	64 02.1	37.4	149 39.0	06.6	308 36.3	22.1	Miaplacidus	221 47.7	S 69 35.2						
23	359 26.3	192 08.4	51.1	79 02.7	37.3	164 41.0	06.8	323 38.9	22.1									
6 00	14 28.7	207 08.0	N 6 49.9	94 03.4	S 25 37.1	179 42.9	S 5 07.0	338 41.6	N 11 22.0	Mirfak	309 27.4	N 49 45.4						
01	29 31.2	222 07.6	48.8	109 04.0	36.9	194 44.9	07.2	353 44.2	21.9	Nunki	76 39.1	S 26 20.3						
02	44 33.7	237 07.2	47.7	124 04.7	36.8	209 46.8	07.4	8 46.8	21.9	Peacock	54 10.6	S 56 50.3						
03	59 36.1	252 06.8	46.5	139 05.3	36.6	224 48.8	07.6	23 49.5	21.8	Pollux	244 08.0	N 28 06.1						
04	74 38.6	267 06.4	45.4	154 06.0	36.4	239 50.8	07.8	38 52.1	21.8	Procyon	245 34.2	N 5 18.5						
05	89 41.0	282 06.0	44.3	169 06.6	36.3	254 52.7	08.1	53 54.7	21.7									
06	104 43.5	297 05.6	N 6 43.1	184 07.3	S 25 36.1	269 54.7	S 5 08.3	68 57.3	N 11 21.6	Rasalhague	96 37.1	N 12 34.9						
07	119 46.0	312 05.2	42.0	199 07.9	35.9	284 56.7	08.5	84 00.0	21.6	Regulus	208 18.7	N 12 07.1						
08	134 48.4	327 04.8	40.9	214 08.5	35.8	299 58.6	08.7	99 02.6	21.5	Rigel	281 43.6	S 8 13.8						
M 09	149 50.9	342 04.3	39.7	229 09.2	35.6	315 00.6	08.9	114 05.2	21.5	Rigel Kent.	140 37.6	S 60 42.7						
O 10	164 53.4	357 03.9	38.6	244 09.8	35.4	330 02.5	09.1	129 07.9	21.4	Sabik	102 50.5	S 15 41.4						
N 11	179 55.8	12 03.5	37.5	259 10.5	35.3	345 04.5	09.3	144 10.5	21.3									
D 12	194 58.3	27 03.1	N 6 36.3	274 11.1	S 25 35.1	0 06.5	S 5 09.5	159 13.1	N 11 21.3	Schedar	350 17.9	N 56 22.4						
A 13	210 00.8	42 02.7	35.2	289 11.8	34.9	15 08.4	09.7	174 15.8	21.2	Shaula	97 06.8	S 37 05.2						
Y 14	225 03.2	57 02.3	34.0	304 12.4	34.8	30 10.4	09.9	189 18.4	21.2	Sirius	259 02.8	S 16 40.1						
15	240 05.7	72 01.9	32.9	319 13.0	34.6	45 12.4	10.1	204 21.0	21.1	Spica	159 06.3	S 11 00.2						
16	255 08.2	87 01.5	31.8	334 13.7	34.4	60 14.3	10.4	219 23.6	21.0	Suhail	223 17.1	S 43 18.2						
17	270 10.6	102 01.1	30.6	349 14.3	34.3	75 16.3	10.6	234 26.3	21.0									
18	285 13.1	117 00.7	N 6 29.5	4 15.0	S 25 34.1	90 18.2	S 5 10.8	249 28.9	N 11 20.9	Vega	81 01.3	N 38 45.4						
19	300 15.5	132 00.3	28.4	19 15.6	33.9	105 20.2	11.0	264 31.5	20.9	Zuben'ubi	137 42.3	S 15 55.0						
20	315 18.0	146 59.9	27.2	34 16.3	33.7	120 22.2	11.2	279 34.2	20.8									
21	330 20.5	161 59.5	26.1	49 16.9	33.6	135 24.1	11.4	294 36.8	20.7									

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise							
		G.H.A.	Dec.	G.H.A.	v	Dec.	d	H.P.		Naut.	Civil		4	5	6	7				
d	h	°	'	°	'	°	'	°	'	°	'	°	'	°	'	°	'			
4	00	182	46.5 S	4	11.6	264	00.8	10.7	N 27	08.6	5.0	54.2	N 72	04 08	05 28	06 36	□	□	22 03	24 57
	01	197	46.7		12.6	278	30.5	10.8	N 27	03.6	5.1	54.2	N 70	04 18	05 30	06 31	□	□	22 58	25 16
	02	212	46.9		13.5	293	00.3	10.8	26	58.5	5.2	54.2	68	04 25	05 31	06 26	□	20 45	23 30	25 31
	03	227	47.1		14.5	307	30.1	10.9	26	53.3	5.3	54.2	66	04 31	05 31	06 23	□	21 49	23 54	25 43
	04	242	47.3		15.5	322	00.0	10.9	26	48.0	5.5	54.2	64	04 37	05 32	06 20	20 13	22 23	24 12	00 12
	05	257	47.5		16.4	336	29.9	10.9	26	42.5	5.6	54.2	62	04 41	05 33	06 17	21 03	22 48	24 27	00 27
	06	272	47.7 S	4	17.4	350	59.8	11.1	N 26	36.9	5.7	54.2	60	04 44	05 33	06 14	21 34	23 08	24 40	00 40
	07	287	47.9		18.4	5	29.9	11.0	26	31.2	5.8	54.2	N 58	04 47	05 33	06 12	21 57	23 24	24 50	00 50
	S 08	302	48.1		19.3	19	59.9	11.2	26	25.4	6.0	54.2	56	04 50	05 33	06 10	22 16	23 38	25 00	01 00
	A 09	317	48.3		20.3	34	30.1	11.2	26	19.4	6.1	54.2	54	04 52	05 33	06 09	22 32	23 49	25 08	01 08
T 10	332	48.5		21.2	49	00.3	11.2	26	13.3	6.1	54.2	52	04 54	05 33	06 07	22 45	24 00	00 00	01 15	
U 11	347	48.6		22.2	63	30.5	11.3	26	07.2	6.4	54.2	50	04 56	05 33	06 06	22 57	24 09	00 09	01 22	
R 12		2 48.8 S	4	23.2	78	00.8	11.3	N 26	00.8	6.4	54.2	45	04 59	05 33	06 03	23 21	24 28	00 28	01 36	
D 13		17 49.0		24.1	92	31.1	11.4	25	54.4	6.5	54.2	N 40	05 01	05 33	06 00	23 41	24 44	00 44	01 47	
A 14		32 49.2		25.1	107	01.5	11.5	25	47.9	6.7	54.2	35	05 03	05 32	05 57	23 57	24 57	00 57	01 57	
Y 15		47 49.4		26.1	121	32.0	11.5	25	41.2	6.8	54.2	30	05 04	05 30	05 52	24 11	00 11	01 09	02 06	
16		62 49.6		27.0	136	02.5	11.6	25	34.4	6.9	54.2	20	05 04	05 30	05 52	24 35	00 35	01 28	02 20	
17		77 49.8		28.0	150	33.1	11.7	25	27.5	7.0	54.2	N 10	05 03	05 27	05 48	00 04	00 55	01 45	02 33	
18		92 50.0 S	4	29.0	165	03.8	11.6	N 25	20.5	7.2	54.2	0	05 00	05 24	05 45	00 25	01 14	02 01	02 45	
19		107 50.2		29.9	179	34.4	11.8	25	13.3	7.2	54.2	S 10	04 56	05 21	05 42	00 47	01 33	02 16	02 57	
20		122 50.4		30.9	194	05.2	11.8	25	06.1	7.4	54.2	20	04 50	05 16	05 38	01 10	01 53	02 33	03 10	
21		137 50.5		31.9	208	36.0	11.9	24	58.7	7.4	54.2	30	04 42	05 10	05 34	01 36	02 17	02 52	03 24	
22		152 50.7		32.8	223	06.9	11.9	24	51.3	7.6	54.3	35	04 36	05 06	05 31	01 52	02 30	03 03	03 32	
23		167 50.9		33.8	237	37.8	12.0	24	43.7	7.7	54.3	40	04 29	05 01	05 29	02 10	02 46	03 16	03 42	
												45	04 20	04 55	05 25	02 32	03 05	03 31	03 53	
5	00	182	51.1 S	4	34.7	252	08.8	12.0	N 24	36.0	7.8	54.3	S 50	04 09	04 48	05 21	02 59	03 28	03 49	04 06
	01	197	51.3		35.7	266	39.8	12.1	24	28.2	7.9	54.3	52	04 03	04 45	05 19	03 13	03 39	03 58	04 12
	02	212	51.5		36.7	281	10.9	12.2	24	20.3	8.1	54.3	54	03 57	04 41	05 17	03 29	03 52	04 07	04 19
	03	227	51.7		37.6	295	42.1	12.2	24	12.2	8.1	54.3	56	03 50	04 37	05 15	03 47	04 06	04 18	04 26
	04	242	51.9		38.6	310	13.3	12.3	24	04.1	8.2	54.3	58	03 42	04 32	05 12	04 09	04 23	04 30	04 35
	05	257	52.1		39.6	324	44.6	12.3	23	55.9	8.4	54.3	S 60	03 33	04 27	05 09	04 38	04 43	04 44	04 44
	06	272	52.2 S	4	40.5	339	15.9	12.4	N 23	47.5	8.4	54.3								
	07	287	52.4		41.5	353	47.3	12.5	23	39.1	8.6	54.3	Lat.	Sun-set	Twilight		Moonset			
	S 08	302	52.6		42.5	8	18.8	12.5	23	30.5	8.6	54.3			Civil	Naut.	4	5	6	7
	U 10	317	52.8		43.4	22	50.3	12.5	23	21.9	8.8	54.3	°	h m	h m	h m	h m	h m	h m	h m
N 11	332	53.0		44.4	37	21.8	12.7	23	13.1	8.9	54.3	N 72	16 59	18 06	19 26	□	□	19 27	18 04	
D 12		2 53.4 S	4	46.3	66	25.1	12.8	N 22	55.2	9.0	54.3	N 70	17 05	18 05	19 17	□	□	18 30	17 43	
A 13		17 53.6		47.3	80	56.9	12.8	22	46.2	9.2	54.3	68	17 09	18 04	19 09	□	19 09	17 56	17 26	
Y 14		32 53.7		48.2	95	28.7	12.8	22	37.0	9.3	54.3	66	17 13	18 04	19 03	□	18 03	17 31	17 12	
15		47 53.9		49.2	110	00.5	12.9	22	27.7	9.4	54.4	64	17 16	18 03	18 59	18 01	17 28	17 12	17 00	
16		62 54.1		50.2	124	32.4	13.0	22	18.3	9.4	54.4	62	17 19	18 03	18 54	17 10	17 02	16 56	16 50	
17		77 54.3		51.1	139	04.4	13.0	22	08.9	9.6	54.4	60	17 22	18 03	18 51	16 38	16 42	16 43	16 42	
18		92 54.5 S	4	52.1	153	36.4	13.1	N 21	59.3	9.7	54.4	N 58	17 24	18 03	18 48	16 15	16 25	16 31	16 34	
19		107 54.7		53.0	168	08.5	13.1	21	49.6	9.7	54.4	56	17 26	18 03	18 46	15 56	16 11	16 21	16 28	
20		122 54.9		54.0	182	40.6	13.2	21	39.9	9.9	54.4	54	17 27	18 02	18 44	15 39	15 59	16 12	16 22	
21		137 55.0		55.0	197	12.8	13.3	21	30.0	10.0	54.4	52	17 29	18 02	18 42	15 25	15 48	16 04	16 17	
22		152 55.2		55.9	211	45.1	13.3	21	20.0	10.0	54.4	50	17 30	18 03	18 40	15 13	15 38	15 57	16 12	
23		167 55.4		56.9	226	17.4	13.3	21	10.0	10.2	54.4	45	17 34	18 03	18 37	14 48	15 17	15 41	16 01	
6	00	182	55.6 S	4	57.9	240	49.7	13.5	N 20	59.8	10.2	54.5	N 40	17 36	18 03	18 35	14 28	15 01	15 28	15 52
	01	197	55.8		58.8	255	22.2	13.4	20	49.6	10.3	54.5	35	17 39	18 04	18 33	14 11	14 46	15 17	15 45
	02	212	56.0		59.8	269	54.6	13.5	20	39.3	10.4	54.5	30	17 41	18 05	18 33	13 56	14 34	15 08	15 38
	03	227	56.1		5 00.7	284	27.1	13.6	20	28.9	10.6	54.5	20	17 45	18 07	18 32	13 31	14 13	14 51	15 26
	04	242	56.3		01.7	298	59.7	13.6	20	18.3	10.6	54.5	N 10	17 48	18 09	18 34	13 09	13 54	14 36	15 16
	05	257	56.5		02.7	313	32.3	13.7	20	07.7	10.7	54.5	0	17 52	18 12	18 37	12 49	13 37	14 22	15 06
	06	272	56.7 S	5	03.6	328	05.0	13.7	N 19	57.0	10.7	54.5	S 10	17 55	18 16	18 41	12 29	13 19	14 08	14 56
	07	287	56.9		04.6	342	37.7	13.8	19	46.3	10.9	54.5	20	17 59	18 21	18 47	12 07	13 01	13 54	14 45
	S 08	302	57.1		05.5	357	10.5	13.8	19	35.4	11.0	54.5	30	18 03	18 28	18 56	11 41	12 39	13 36	14 33
	M 09	317	57.2		06.5	11	43.3	13.9	19	24.4	11.0	54.6	35	18 06	18 32	19 02	11 26	12 26	13 26	14 26
U 10	332	57.4		07.5	26	16.2	13.9	19	13.4	11.1	54.6	40	18 09	18 37	19 09	11 09	12 11	13 15	14 18	
N 11	347	57.6		08.4	40	49.1	14.0	19	02.3	11.2	54.6	45	18 13	18 42	19 18	10 47	11 53	13 01	14 08	
D 12																				

G.M.T.		ARIES		VENUS -3.4		MARS +0.1		JUPITER -1.2		SATURN +0.2		STARS			
d h		G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
TUESDAY	7 00	15 27.9	206 58.2	N 6 22.7	94 18.8	S 25 33.0	180 30.0	S 5 12.0	339 44.7	N 11 20.5			Acamar	315 42.8	S 40 25.2
	01	30 30.3	221 57.8	21.5	109 19.5	32.9	195 32.0	12.2	354 47.3	20.5			Achernar	335 50.3	S 57 23.2
	02	45 32.8	236 57.4	20.4	124 20.1	32.7	210 33.9	12.4	9 49.9	20.4			Acrux	173 47.3	S 62 55.8
	03	60 35.3	251 57.0	19.2	139 20.7	32.5	225 35.9	12.7	24 52.6	20.4			Adhara	255 38.4	S 28 55.4
	04	75 37.7	266 56.6	18.1	154 21.4	32.4	240 37.9	12.9	39 55.2	20.3			Aldebaran	291 27.1	N 16 27.2
	05	90 40.2	281 56.2	17.0	169 22.0	32.2	255 39.8	13.1	54 57.8	20.2					
	06	105 42.6	296 55.8	N 6 15.8	184 22.7	S 25 32.0	270 41.8	S 5 13.3	70 00.5	N 11 20.2			Alioth	166 49.8	N 56 07.4
	07	120 45.1	311 55.4	14.7	199 23.3	31.8	285 43.7	13.5	85 03.1	20.1			Alkaid	153 25.0	N 49 27.9
	08	135 47.6	326 55.0	13.5	214 23.9	31.7	300 45.7	13.7	100 05.7	20.1			Al Na'ir	28 24.5	S 47 06.6
	09	150 50.0	341 54.6	12.4	229 24.6	31.5	315 47.7	13.9	115 08.4	20.0			Alnilam	276 19.7	S 1 12.9
	10	165 52.5	356 54.2	11.2	244 25.2	31.3	330 49.6	14.1	130 11.0	19.9			Alphard	218 28.7	S 8 31.4
	11	180 55.0	11 53.8	10.1	259 25.8	31.1	345 51.6	14.3	145 13.6	19.9					
	12	195 57.4	26 53.4	N 6 08.9	274 26.5	S 25 30.9	0 53.6	S 5 14.5	160 16.3	N 11 19.8			Alphecca	126 39.1	N 26 49.0
	13	210 59.9	41 53.0	07.8	289 27.1	30.8	15 55.5	14.7	175 18.9	19.8			Alpheratz	358 17.4	N 28 55.6
	14	226 02.4	56 52.6	06.7	304 27.8	30.6	30 57.5	15.0	190 21.5	19.7			Altair	62 40.3	N 8 47.3
	15	241 04.8	71 52.2	05.5	319 28.4	30.4	45 59.4	15.2	205 24.2	19.6			Ankaa	353 47.5	S 42 28.1
	16	256 07.3	86 51.8	04.4	334 29.0	30.2	61 01.4	15.4	220 26.8	19.6			Antares	113 07.0	S 26 22.1
	17	271 09.8	101 51.3	03.2	349 29.7	30.1	76 03.4	15.6	235 29.4	19.5					
	18	286 12.2	116 50.9	N 6 02.1	4 30.3	S 25 29.9	91 05.3	S 5 15.8	250 32.1	N 11 19.5			Arcturus	146 26.0	N 19 20.4
	19	301 14.7	131 50.5	6 00.9	19 30.9	29.7	106 07.3	16.0	265 34.7	19.4			Atria	108 38.8	S 68 58.8
	20	316 17.1	146 50.1	5 59.8	34 31.6	29.5	121 09.3	16.2	280 37.3	19.3			Avior	234 31.9	S 59 24.3
	21	331 19.6	161 49.7	5 58.6	49 32.2	29.3	136 11.2	16.4	295 40.0	19.3			Bellatrix	279 07.2	N 6 19.7
	22	346 22.1	176 49.3	57.5	64 32.8	29.1	151 13.2	16.6	310 42.6	19.2			Betelgeuse	271 36.9	N 7 24.4
	23	1 24.5	191 48.9	56.3	79 33.5	29.0	166 15.1	16.8	325 45.2	19.1					
WEDNESDAY	8 00	16 27.0	206 48.5	N 5 55.2	94 34.1	S 25 28.8	181 17.1	S 5 17.0	340 47.9	N 11 19.1			Canopus	264 10.7	S 52 40.2
	01	31 29.5	221 48.1	54.0	109 34.8	28.6	196 19.1	17.2	355 50.5	19.0			Capella	281 23.0	N 45 58.2
	02	46 31.9	236 47.7	52.9	124 35.4	28.4	211 21.0	17.5	10 53.1	19.0			Deneb	49 53.9	N 45 10.5
	03	61 34.4	251 47.3	51.7	139 36.0	28.2	226 23.0	17.7	25 55.8	18.9			Denebola	183 07.5	N 14 44.5
	04	76 36.9	266 46.9	50.6	154 36.7	28.1	241 24.9	17.9	40 58.4	18.8			Diphda	349 28.5	S 18 09.0
	05	91 39.3	281 46.5	49.4	169 37.3	27.9	256 26.9	18.1	56 01.0	18.8					
	06	106 41.8	296 46.1	N 5 48.3	184 37.9	S 25 27.7	271 28.9	S 5 18.3	71 03.7	N 11 18.7			Dubhe	194 32.1	N 61 54.8
	07	121 44.2	311 45.7	47.1	199 38.6	27.5	286 30.8	18.5	86 06.3	18.7			Elmath	278 54.1	N 28 35.1
	08	136 46.7	326 45.3	46.0	214 39.2	27.3	301 32.8	18.7	101 08.9	18.6			Eltanin	91 01.6	N 51 29.7
	09	151 49.2	341 44.9	44.8	229 39.8	27.1	316 34.8	18.9	116 11.6	18.5			Enif	34 19.3	N 9 44.2
	10	166 51.6	356 44.5	43.7	244 40.5	26.9	331 36.7	19.1	131 14.2	18.5			Fomalhaut	15 59.8	S 29 47.0
	11	181 54.1	11 44.1	42.5	259 41.1	26.8	346 38.7	19.3	146 16.8	18.4					
	12	196 56.6	26 43.7	N 5 41.4	274 41.7	S 25 26.6	1 40.6	S 5 19.5	161 19.5	N 11 18.3			Gacrux	172 38.6	S 56 56.6
	13	211 59.0	41 43.3	40.2	289 42.4	26.4	16 42.6	19.7	176 22.1	18.3			Gienah	176 26.6	S 17 22.3
	14	227 01.5	56 42.9	39.1	304 43.0	26.2	31 44.6	20.0	191 24.7	18.2			Hadar	149 35.7	S 60 13.8
	15	242 04.0	71 42.5	37.9	319 43.6	26.0	46 46.5	20.2	206 27.4	18.2			Hamal	328 37.7	N 23 19.4
	16	257 06.4	86 42.1	36.8	334 44.3	25.8	61 48.5	20.4	221 30.0	18.1			Kaus Aust.	84 27.5	S 34 24.2
	17	272 08.9	101 41.7	35.6	349 44.9	25.6	76 50.4	20.6	236 32.6	18.0					
	18	287 11.4	116 41.3	N 5 34.5	4 45.5	S 25 25.4	91 52.4	S 5 20.8	251 35.3	N 11 18.0			Kochab	137 19.0	N 74 16.8
	19	302 13.8	131 40.9	33.3	19 46.2	25.3	106 54.4	21.0	266 37.9	17.9			Markab	14 10.9	N 15 02.7
	20	317 16.3	146 40.5	32.1	34 46.8	25.1	121 56.3	21.2	281 40.5	17.9			Menkar	314 49.3	N 3 58.6
	21	332 18.7	161 40.1	31.0	49 47.4	24.9	136 58.3	21.4	296 43.2	17.8			Menkent	148 47.0	S 36 13.4
	22	347 21.2	176 39.7	29.8	64 48.0	24.7	152 00.3	21.6	311 45.8	17.7			Miaplacidus	221 47.6	S 69 35.1
	23	2 23.7	191 39.3	28.7	79 48.7	24.5	167 02.2	21.8	326 48.5	17.7					
THURSDAY	9 00	17 26.1	206 38.9	N 5 27.5	94 49.3	S 25 24.3	182 04.2	S 5 22.0	341 51.1	N 11 17.6			Mirfak	309 27.4	N 49 45.4
	01	32 28.6	221 38.5	26.4	109 49.9	24.1	197 06.1	22.3	356 53.7	17.5			Nunki	76 39.1	S 26 20.3
	02	47 31.1	236 38.1	25.2	124 50.6	23.9	212 08.1	22.5	11 56.4	17.5			Peacock	54 10.6	S 56 50.3
	03	62 33.5	251 37.7	24.1	139 51.2	23.7	227 10.1	22.7	26 59.0	17.4			Pollux	244 08.0	N 28 06.1
	04	77 36.0	266 37.3	22.9	154 51.8	23.5	242 12.0	22.9	42 01.6	17.4			Procyon	245 34.2	N 5 18.5
	05	92 38.5	281 36.9	21.7	169 52.5	23.3	257 14.0	23.1	57 04.3	17.3					
	06	107 40.9	296 36.5	N 5 20.6	184 53.1	S 25 23.2	272 15.9	S 5 23.3	72 06.9	N 11 17.2			Rasalhague	96 37.1	N 12 34.9
	07	122 43.4	311 36.1	19.4	199 53.7	23.0	287 17.9	23.5	87 09.5	17.2			Regulus	208 18.7	N 12 07.1
	08	137 45.9	326 35.7	18.3	214 54.3	22.8	302 19.9	23.7	102 12.2	17.1			Rigel	281 43.6	S 8 13.8
	09	152 48.3	341 35.3	17.1	229 55.0	22.6	317 21.8	23.9	117 14.8	17.1			Rigel Kent.	140 37.6	S 60 42.7
	10	167 50.8	356 34.9	15.9	244 55.6	22.4	332 23.8	24.1	132 17.5	17.0			Sabik	102 50.5	S 15 41.4
	11	182 53.2	11 34.5	14.8	259 56.2	22.2	347 25.8	24.3	147 20.1	16.9					
	12	197 55.7	26 34.1	N 5 13.6	274 56.9	S 25 22.0	2 27.7	S 5 24.5	162 22.7	N 11 16.9			Schedar	350 17.9	N 56 22.5
	13	212 58.2	41 33.7	12.5	289 57.5	21.8	17 29.7	24.7	177 25.4	16.8			Shaula	97 06.8	S 37 05.2
	14	228 00.6	56 33.3	11.3	304 58.1	21.6	32 31.6	25.0	192 28.0	16.7			Sirius	259 02.8	S 16 40.1
	15	243 03.1	71 32.9	10.1	319 58.7	21.4	47 33.6	25.2	207 30.6	16.7			Spica	159 06.3	S 11 00.2
	16	258 05.6	86 32.5	09.0	334 59.4	21.2	62 35.6	25.4	222 33.3	16.6			Suhail	223 17.1	S 43 18.2
	17	273 08.0	101 32.1	07.8	350 00.0	21.0	77 37.5	25.6	237 35.9	16.6					
	18	288 10.5	116 31.7	N 5 06.7	5 00.6	S 25 20.8	92 39.5	S 5 25.8	252 38.5	N 11 16.5			Vega	81 01.4	N 38 45.4
	19	303 13.0	131 31.3	05.5	20 01.2	20.6	107 41.4	26.0	267 41.2	16.4			Zuben'ubi	137 42.3	S 15 55.0
	20	318 15.4	146 30.9	04.3	35 01.9	20.4	122 43.4	26.2	282 43.8	16.4					
	21	333 17.9	161 30.5	03.2	50 02.5	20.2	137 45.4	26.4	297 46.5	16.3					
	22	348 20.4	176 30.1	02.0	65 03.1	20.0	152 47.3	26.6	312 49.1	16.2			Venus	190 21.5	10 13
	23	3 22.8	191 29.7	00.8	80 03.8	19.8	167 49.3	26.8	327 51.7	16.2			Mars	78 07.1	17 41
Mer. Pass. 22 50.4		v -0.4		d 1.2	v 0.6		d 0.2	v 2.0		d 0.2	v 2.6		d 0.1	S.H.A. Mer. Pass.	
h m														m	
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G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise															
		G.H.A.	Dec.	G.H.A.	ν	Dec.	d	H.P.		Naut.	Civil		7	8	9	10												
d	h	°	'	°	'	°	'	'	°	^h °	^m '	^h °	^m '	^h °	^m '	^h °	^m '											
TUESDAY	7 00	183	00.0 S	5	20.9	230	01.4	14.6	N 16	30.2	12.2	54.8	N 70	04	30	05	41	06	43	25	16	01	16	03	17	05	15	
	01	198	00.2		21.9	244	35.0	14.5		16	18.0	12.3	54.8	68	04	36	05	41	06	37	25	31	01	31	03	22	05	12
	02	213	00.3		22.8	259	08.5	14.7		16	05.7	12.4	54.8	66	04	41	05	41	06	32	25	43	01	43	03	27	05	11
	03	228	00.5		23.8	273	42.2	14.7		15	53.3	12.5	54.8	64	04	45	05	41	06	28	00	12	01	53	03	31	05	09
	04	243	00.7		24.7	288	15.9	14.7		15	40.8	12.5	54.9	62	04	49	05	40	06	25	00	27	02	02	03	34	05	07
	05	258	00.9		25.7	302	49.6	14.7		15	28.3	12.6	54.9	60	04	52	05	40	06	22	00	40	02	09	03	37	05	06
	06	273	01.1 S	5	26.6	317	23.3	14.8	N 15	15.7	12.7	54.9	N 58	04	54	05	40	06	19	00	50	02	15	03	40	05	04	
	07	288	01.2		27.6	331	57.1	14.8		15	03.0	12.7	54.9	56	04	56	05	39	06	16	01	00	02	21	03	42	05	05
	08	303	01.4		28.6	346	30.9	14.9		14	50.3	12.8	54.9	54	04	58	05	39	06	14	01	08	02	26	03	44	05	03
	09	318	01.6		29.5	1	04.8	14.8		14	37.5	12.9	54.9	52	04	59	05	38	06	12	01	15	02	31	03	46	05	02
	10	333	01.8		30.5	15	38.6	15.0		14	24.6	13.0	55.0	50	05	01	05	38	06	10	01	22	02	35	03	48	05	02
	11	348	01.9		31.4	30	12.6	14.9		14	11.6	13.0	55.0	45	05	03	05	37	06	06	01	36	02	43	03	51	05	00
	12	3	02.1 S	5	32.4	44	46.5	15.0	N 13	58.6	13.0	55.0	N 40	05	04	05	36	06	03	01	47	02	51	03	54	05	04	59
	13	18	02.3		33.3	59	20.5	15.0		13	45.6	13.2	55.0	35	05	05	05	35	06	00	01	57	02	57	03	57	04	58
	14	33	02.5		34.3	73	54.5	15.1		13	32.4	13.2	55.0	30	05	06	05	33	05	57	02	06	03	03	03	59	04	57
	15	48	02.7		35.3	88	28.6	15.0		13	19.2	13.3	55.1	20	05	05	05	30	05	53	02	20	03	12	04	03	04	55
	16	63	02.8		36.2	103	02.6	15.1		13	05.9	13.3	55.1	N 10	05	03	05	27	05	48	02	33	03	20	04	07	04	54
	17	78	03.0		37.2	117	36.7	15.2		12	52.6	13.4	55.1	0	04	59	05	24	05	44	02	45	03	28	04	10	04	52
	18	93	03.2 S	5	38.1	132	10.9	15.1	N 12	39.2	13.4	55.1	S 10	04	54	05	19	05	40	02	57	03	36	04	13	04	51	
	19	108	03.4		39.1	146	45.0	15.2		12	25.8	13.6	55.1	20	04	48	05	13	05	36	03	10	03	44	04	17	04	50
	20	123	03.5		40.0	161	19.2	15.2		12	12.2	13.5	55.2	30	04	38	05	06	05	30	03	24	03	53	04	21	04	48
	21	138	03.7		41.0	175	53.4	15.2		11	58.7	13.7	55.2	35	04	32	05	02	05	27	03	32	03	58	04	23	04	47
	22	153	03.9		42.0	190	27.6	15.3		11	45.0	13.6	55.2	40	04	24	04	56	05	24	03	42	04	04	04	26	04	46
23	168	04.1		42.9	205	01.9	15.2		11	31.4	13.8	55.2	45	04	14	04	50	05	20	03	53	04	11	04	29	04	45	
WEDNESDAY	8 00	183	04.3 S	5	43.9	219	36.1	15.3	N 11	17.6	13.8	55.2	S 50	04	02	04	42	05	15	04	06	04	20	04	32	04	44	
	01	198	04.4		44.8	234	10.4	15.4		11	03.8	13.9	55.3	52	03	56	04	38	05	12	04	12	04	23	04	34	04	43
	02	213	04.6		45.8	248	44.8	15.3		10	49.9	13.9	55.3	54	03	49	04	33	05	10	04	19	04	28	04	35	04	43
	03	228	04.8		46.7	263	19.1	15.3		10	36.0	13.9	55.3	56	03	41	04	29	05	07	04	26	04	32	04	37	04	42
	04	243	05.0		47.7	277	53.4	15.4		10	22.1	14.0	55.3	58	03	33	04	23	05	04	04	35	04	37	04	39	04	41
	05	258	05.1		48.6	292	27.8	15.4		10	08.1	14.1	55.3	S 60	03	22	04	17	05	00	04	44	04	43	04	42	04	40
	06	273	05.3 S	5	49.6	307	02.2	15.4	N 9	54.0	14.1	55.4		Lat.	Sun-set	Twilight		Moonset										
	07	288	05.5		50.6	321	36.6	15.4		9	39.9	14.2	55.4															
	08	303	05.7		51.5	336	11.0	15.4		9	25.7	14.2	55.4															
	09	318	05.8		52.5	350	45.4	15.5		9	11.5	14.3	55.4															
	10	333	06.0		53.4	5	19.9	15.4		8	57.2	14.3	55.5															
	11	348	06.2		54.4	19	54.3	15.5		8	42.9	14.4	55.5	N 72	16	44	17	51	19	10	18	04	17	21	16	46	16	11
	12	3	06.4 S	5	55.3	34	28.8	15.4	N 8	28.5	14.4	55.5	N 70	16	51	17	52	19	03	17	43	17	11	16	44	16	18	
	13	18	06.5		56.3	49	03.2	15.5		8	14.1	14.4	55.5	68	16	57	17	52	18	57	17	26	17	03	16	43	16	23
	14	33	06.7		57.2	63	37.7	15.5		7	59.7	14.5	55.5	66	17	02	17	53	18	52	17	12	16	56	16	42	16	28
	15	48	06.9		58.2	78	12.2	15.5		7	45.2	14.6	55.6	64	17	06	17	53	18	48	17	00	16	50	16	41	16	31
	16	63	07.0	5	59.1	92	46.7	15.5		7	30.6	14.6	55.6	62	17	09	17	54	18	45	16	50	16	45	16	40	16	35
	17	78	07.2	6	00.1	107	21.2	15.5		7	16.0	14.6	55.6	60	17	13	17	54	18	42	16	42	16	41	16	39	16	38
	18	93	07.4 S	6	01.0	121	55.7	15.5	N 7	01.4	14.7	55.6	N 58	17	15	17	54	18	40	16	34	16	37	16	39	16	40	
	19	108	07.6		02.0	136	30.2	15.5		6	46.7	14.7	55.7	56	17	18	17	55	18	38	16	28	16	33	16	38	16	43
	20	123	07.7		03.0	151	04.7	15.5		6	32.0	14.7	55.7	54	17	20	17	55	18	36	16	22	16	30	16	37	16	45
	21	138	07.9		03.9	165	39.2	15.5		6	17.3	14.8	55.7	52	17	22	17	56	18	35	16	17	16	27	16	37	16	47
	22	153	08.1		04.9	180	13.7	15.5		6	02.5	14.8	55.7	50	17	24	17	56	18	34	16	12	16	25	16	37	16	49
23	168	08.2		05.8	194	48.2	15.6		5	47.7	14.9	55.8	45	17	28	17	58	18	31	16	01	16	19	16	36	16	53	
THURSDAY	9 00	183	08.4 S	6	06.8	209	22.8	15.5	N 5	32.8	14.9	55.8	N 40	17	32	17	59	18	30	15	52	16	14	16	35	16	56	
	01	198	08.6		07.7	223	57.3	15.5		5	17.9	14.9	55.8	35														

G.M.T.		ARIES		VENUS -3.4		MARS +0.2		JUPITER -1.2		SATURN +0.1		STARS			
d	h	G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
10	00	18 25.3	206 29.3	N 4 59.7	95 04.4	S 25 19.6	182 51.2	S 5 27.0	342 54.4	N 11 16.1			Acamar	315 42.8	S 40 25.2
	01	33 27.7	221 28.9	58.5	110 05.0	19.4	197 53.2	27.2	357 57.0	16.1			Achernar	335 50.3	S 57 23.2
	02	48 30.2	236 28.5	57.3	125 05.6	19.2	212 55.2	27.5	12 59.6	16.0			Acrux	173 47.3	S 62 55.8
	03	63 32.7	251 28.1	56.2	140 06.3	19.0	227 57.1	27.7	28 02.3	15.9			Adhara	255 38.4	S 28 55.4
	04	78 35.1	266 27.7	55.0	155 06.9	18.8	242 59.1	27.9	43 04.9	15.9			Aldebaran	291 27.0	N 16 27.2
	05	93 37.6	281 27.3	53.9	170 07.5	18.6	258 01.1	28.1	58 07.6	15.8					
	06	108 40.1	296 27.0	N 4 52.7	185 08.1	S 25 18.4	273 03.0	S 5 28.3	73 10.2	N 11 15.7			Alioth	166 49.8	N 56 07.4
	07	123 42.5	311 26.6	51.5	200 08.8	18.2	288 05.0	28.5	88 12.8	15.7			Alkaid	153 25.0	N 49 27.9
	08	138 45.0	326 26.2	50.4	215 09.4	18.0	303 06.9	28.7	103 15.5	15.6			Al Na'ir	28 24.5	S 47 06.6
	09	153 47.5	341 25.8	49.2	230 10.0	17.8	318 08.9	28.9	118 18.1	15.6			Alnilam	276 19.7	S 1 12.4
	10	168 49.9	356 25.4	48.0	245 10.6	17.6	333 10.9	29.1	133 20.8	15.5			Alphard	218 28.6	S 8 31.4
	11	183 52.4	11 25.0	46.9	260 11.3	17.4	348 12.8	29.3	148 23.4	15.4					
	12	198 54.8	26 24.6	N 4 45.7	275 11.9	S 25 17.2	3 14.8	S 5 29.5	163 26.0	N 11 15.4			Alphecca	126 39.1	N 26 49.0
	13	213 57.3	41 24.2	44.5	290 12.5	17.0	18 16.7	29.7	178 28.7	15.3			Alpheratz	358 17.4	N 28 55.6
	14	228 59.8	56 23.8	43.4	305 13.1	16.8	33 18.7	30.0	193 31.3	15.2			Altair	62 40.3	N 8 47.3
	15	244 02.2	71 23.4	42.2	320 13.7	16.6	48 20.7	30.2	208 33.9	15.2			Ankaa	353 47.5	S 42 28.1
	16	259 04.7	86 23.0	41.0	335 14.4	16.4	63 22.6	30.4	223 36.6	15.1			Antares	113 07.0	S 26 22.1
	17	274 07.2	101 22.6	39.9	350 15.0	16.2	78 24.6	30.6	238 39.2	15.1					
	18	289 09.6	116 22.2	N 4 38.7	5 15.6	S 25 16.0	93 26.5	S 5 30.8	253 41.9	N 11 15.0			Arcturus	146 26.0	N 19 20.4
	19	304 12.1	131 21.8	37.5	20 16.2	15.7	108 28.5	31.0	268 44.5	14.9			Atria	108 38.9	S 68 58.8
	20	319 14.6	146 21.4	36.3	35 16.9	15.5	123 30.5	31.2	283 47.1	14.9			Avior	234 31.9	S 59 24.3
	21	334 17.0	161 21.0	35.2	50 17.5	15.3	138 32.4	31.4	298 49.8	14.8			Bellatrix	279 07.2	N 6 19.7
	22	349 19.5	176 20.6	34.0	65 18.1	15.1	153 34.4	31.6	313 52.4	14.7			Betelgeuse	271 36.8	N 7 24.4
	23	4 21.9	191 20.2	32.8	80 18.7	14.9	168 36.3	31.8	328 55.1	14.7					
11	00	19 24.4	206 19.8	N 4 31.7	95 19.3	S 25 14.7	183 38.3	S 5 32.0	343 57.7	N 11 14.6			Canopus	264 10.7	S 52 40.2
	01	34 26.9	221 19.4	30.5	110 20.0	14.5	198 40.3	32.2	359 00.3	14.6			Capella	281 22.9	N 45 58.2
	02	49 29.3	236 19.0	29.3	125 20.6	14.3	213 42.2	32.4	14 03.0	14.5			Deneb	49 53.9	N 45 10.5
	03	64 31.8	251 18.6	28.2	140 21.2	14.1	228 44.2	32.7	29 05.6	14.4			Denebola	183 07.4	N 14 44.5
	04	79 34.3	266 18.2	27.0	155 21.8	13.9	243 46.1	32.9	44 08.3	14.4			Diphda	349 28.5	S 18 09.0
	05	94 36.7	281 17.9	25.8	170 22.4	13.6	258 48.1	33.1	59 10.9	14.3					
	06	109 39.2	296 17.5	N 4 24.6	185 23.1	S 25 13.4	273 50.1	S 5 33.3	74 13.5	N 11 14.2			Dubhe	194 32.1	N 61 54.8
	07	124 41.7	311 17.1	23.5	200 23.7	13.2	288 52.0	33.5	89 16.2	14.2			Elnath	278 54.1	N 28 35.1
	08	139 44.1	326 16.7	22.3	215 24.3	13.0	303 54.0	33.7	104 18.8	14.1			Eltanin	91 01.6	N 51 29.7
	09	154 46.6	341 16.3	21.1	230 24.9	12.8	318 56.0	33.9	119 21.5	14.1			Enif	34 19.3	N 9 44.2
	10	169 49.0	356 15.9	19.9	245 25.5	12.6	333 57.9	34.1	134 24.1	14.0			Fomalhaut	15 59.8	S 29 47.0
	11	184 51.5	11 15.5	18.8	260 26.2	12.4	348 59.9	34.3	149 26.7	13.9					
	12	199 54.0	26 15.1	N 4 17.6	275 26.8	S 25 12.2	4 01.8	S 5 34.5	164 29.4	N 11 13.9			Gacrux	172 38.6	S 56 56.5
	13	214 56.4	41 14.7	16.4	290 27.4	11.9	19 03.8	34.7	179 32.0	13.8			Gienah	176 26.6	S 17 22.3
	14	229 58.9	56 14.3	15.3	305 28.0	11.7	34 05.8	34.9	194 34.7	13.7			Hadar	149 35.7	S 60 13.8
	15	245 01.4	71 13.9	14.1	320 28.6	11.5	49 07.7	35.1	209 37.3	13.7			Hamal	328 37.7	N 23 19.4
	16	260 03.8	86 13.5	12.9	335 29.3	11.3	64 09.7	35.4	224 39.9	13.6			Kaus Aust.	84 27.5	S 34 24.2
	17	275 06.3	101 13.1	11.7	350 29.9	11.1	79 11.6	35.6	239 42.6	13.5					
	18	290 08.8	116 12.7	N 4 10.6	5 30.5	S 25 10.9	94 13.6	S 5 35.8	254 45.2	N 11 13.5			Kochab	137 19.0	N 74 16.8
	19	305 11.2	131 12.3	09.4	20 31.1	10.7	109 15.6	36.0	269 47.9	13.4			Markab	14 10.9	N 15 02.7
	20	320 13.7	146 12.0	08.2	35 31.7	10.4	124 17.5	36.2	284 50.5	13.4			Menkar	314 49.2	N 3 58.6
	21	335 16.2	161 11.6	07.0	50 32.3	10.2	139 19.5	36.4	299 53.2	13.3			Menkent	148 47.0	S 36 13.4
	22	350 18.6	176 11.2	05.8	65 33.0	10.0	154 21.4	36.6	314 55.8	13.2			Miaplacidus	221 47.6	S 69 35.1
	23	5 21.1	191 10.8	04.7	80 33.6	09.8	169 23.4	36.8	329 58.4	13.2					
12	00	20 23.6	206 10.4	N 4 03.5	95 34.2	S 25 09.6	184 25.4	S 5 37.0	345 01.1	N 11 13.1			Mirfak	309 27.4	N 49 45.4
	01	35 26.0	221 10.0	02.3	110 34.8	09.4	199 27.3	37.2	0 03.7	13.0			Nunki	76 39.1	S 26 20.3
	02	50 28.5	236 09.6	01.1	125 35.4	09.1	214 29.3	37.4	15 06.4	13.0			Peacock	54 10.7	S 56 50.3
	03	65 30.9	251 09.2	4 00.0	140 36.0	08.9	229 31.2	37.6	30 09.0	12.9			Pollux	244 08.0	N 28 06.1
	04	80 33.4	266 08.8	3 58.8	155 36.7	08.7	244 33.2	37.8	45 11.6	12.8			Procyon	245 34.2	N 5 18.4
	05	95 35.9	281 08.4	57.6	170 37.3	08.5	259 35.2	38.1	60 14.3	12.8					
	06	110 38.3	296 08.0	N 3 56.4	185 37.9	S 25 08.3	274 37.1	S 5 38.3	75 16.9	N 11 12.7			Rasalhague	96 37.2	N 12 34.9
	07	125 40.8	311 07.6	55.3	200 38.5	08.0	289 39.1	38.5	90 19.6	12.7			Regulus	208 18.7	N 12 07.1
	08	140 43.3	326 07.3	54.1	215 39.1	07.8	304 41.1	38.7	105 22.2	12.6			Rigel	281 43.5	S 8 13.8
	09	155 45.7	341 06.9	52.9	230 39.7	07.6	319 43.0	38.9	120 24.9	12.5			Rigel Kent.	140 37.6	S 60 42.7
	10	170 48.2	356 06.5	51.7	245 40.4	07.4	334 45.0	39.1	135 27.5	12.5			Sabik	102 50.5	S 15 41.4
	11	185 50.7	11 06.1	50.5	260 41.0	07.1	349 46.9	39.3	150 30.1	12.4					
	12	200 53.1	26 05.7	N 3 49.4	275 41.6	S 25 06.9	4 48.9	S 5 39.5	165 32.8	N 11 12.3			Schedar	350 17.9	N 56 22.5
	13	215 55.6	41 05.3	48.2	290 42.2	06.7	19 50.9	39.7	180 35.4	12.3			Shaula	97 06.9	S 37 05.2
	14	230 58.0	56 04.9	47.0	305 42.8	06.5	34 52.8	39.9	195 38.1	12.2			Sirius	259 02.7	S 16 40.1
	15	246 00.5	71 04.5	45.8	320 43.4	06.2	49 54.8	40.1	210 40.7	12.1			Spica	159 06.3	S 11 00.2
	16	261 03.0	86 04.1	44.6	335 44.0	06.0	64 56.7	40.3	225 43.4	12.1			Suhail	223 17.0	S 43 18.2
	17	276 05.4	101 03.7	43.5	350 44.7	05.8	79 58.7	40.5	240 46.0	12.0					
	18	291 07.9	116 03.3	N 3 42.3	5 45.3	S 25 05.6	95 00.7	S 5 40.8	255 48.6	N 11 12.0			Vega	81 01.4	N 38 45.4
	19	306 10.4	131 03.0	41.1	20 45.9	05.3	110 02.6	41.0	270 51.3	11.9			Zuben'ubi	137 42.3	S 15 55.0
	20	321 12.8	146 02.6	39.9	35 46.5	05.1	125 04.6	41.2	285 53.9	11.8					
	21	336 15.3	161 02.2	38.7	50 47.1	04.9	140 06.5	41.4	300 56.6	11.8					
	22	351 17.8	176 01.8	37.5	65 47.7	04.7	155 08.5	41.6	315 59.2	11.7					
	23	6 20.2	191 01.4	36.4	80 48.3	04.4	170 10.5	41.8	331 01.9	11.6					
Mer. Pass. 22 38.7		v -0.4		d 1.2	v 0.6		d 0.2	v 2.0		d 0.2	v 2.6		d 0.1	S.H.A. Mer. Pass.	
														h m	
														Venus 186 55.4 10 15	
														Mars 75 54.9 17 38	
														Jupiter 164 13.9 11 44	
														Saturn 324 33.3 1 04	

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise					
		G.H.A.	Dec.	G.H.A.	p	Dec.	d		H.P.	Naut.		Civil	10	11	12	13	
d	h	o	o	o	o	o	o	o	h	m	h	m	h	m	h	m	
1000	01	183	12.5 S	6 29.6	199	07.6	15.1 S	0 32.4	15.5	56.4	N 70	04 42	05 53	06 55	05 15	07 19	09 43
	02	198	12.6	30.5	213	41.7	15.1	0 47.9	15.5	56.4	68	04 47	05 52	06 48	05 12	07 08	09 16
	03	213	12.8	31.5	228	15.8	15.0	1 03.4	15.5	56.4	66	04 51	05 50	06 42	05 11	06 58	08 56
	04	228	13.0	32.4	242	49.8	15.0	1 18.9	15.5	56.5	64	04 54	05 49	06 37	05 09	06 51	08 40
	05	243	13.1	33.4	257	23.8	15.0	1 34.4	15.5	56.5	62	04 57	05 48	06 33	05 07	06 44	08 27
	06	258	13.3	34.3	271	57.8	15.0	1 49.9	15.5	56.5	60	04 59	05 47	06 29	05 06	06 38	08 16
	07	273	13.5 S	6 35.3	286	31.8	14.9 S	2 05.4	15.5	56.5	N 58	05 01	05 46	06 25	05 05	06 33	08 06
	08	288	13.6	36.2	301	05.7	14.8	2 20.9	15.5	56.6	56	05 02	05 45	06 22	05 04	06 29	07 58
	09	303	13.8	37.2	315	39.5	14.9	2 36.4	15.6	56.6	54	05 03	05 44	06 20	05 03	06 25	07 51
	10	318	14.0	38.1	330	13.4	14.8	2 52.0	15.5	56.6	52	05 04	05 43	06 17	05 02	06 21	07 44
FRI	11	333	14.1	39.1	344	47.2	14.7	3 07.5	15.5	56.6	50	05 05	05 43	06 15	05 02	06 18	07 38
	12	348	14.3	40.0	359	20.9	14.7	3 23.0	15.6	56.7	45	05 07	05 41	06 10	05 00	06 11	07 25
	13	3 14.5 S	6 41.0	13	54.6	14.7 S	3 38.6	15.5	56.7	N 40	05 07	05 39	06 06	04 59	06 05	07 15	
	14	18 14.6	41.9	28	28.3	14.6	3 54.1	15.5	56.7	35	05 08	05 37	06 02	04 58	06 01	07 06	
	15	33 14.8	42.9	43	01.9	14.6	4 09.6	15.6	56.8	30	05 07	05 35	05 59	04 57	05 56	06 58	
	16	48 15.0	43.8	57	35.5	14.5	4 25.2	15.5	56.8	20	05 06	05 31	05 53	04 55	05 49	06 45	
	17	63 15.1	44.8	72	09.0	14.5	4 40.7	15.5	56.8	N 10	05 03	05 27	05 48	04 54	05 42	06 34	
	18	78 15.3	45.7	86	42.5	14.4	4 56.2	15.5	56.8	0	04 59	05 23	05 43	04 52	05 36	06 23	
	19	93 15.4 S	6 46.6	101	15.9	14.4 S	5 11.7	15.5	56.9	S 10	04 53	05 17	05 39	04 51	05 30	06 12	
	20	108 15.6	47.6	115	49.3	14.3	5 27.2	15.5	56.9	20	04 45	05 11	05 33	04 50	05 24	06 01	
SUN	21	123 15.8	48.5	130	22.6	14.3	5 42.7	15.5	56.9	30	04 34	05 03	05 27	04 48	05 17	05 48	
	22	138 15.9	49.5	144	55.9	14.2	5 58.2	15.4	56.9	35	04 27	04 58	05 23	04 47	05 13	05 41	
	23	153 16.1	50.4	159	29.1	14.2	6 13.6	15.5	57.0	40	04 19	04 51	05 19	04 46	05 08	05 33	
	01	168 16.3	51.4	174	02.3	14.1	6 29.1	15.4	57.0	45	04 08	04 44	05 14	04 45	05 03	05 23	
	02	183 16.4 S	6 52.3	188	35.4	14.1 S	6 44.5	15.4	57.0	S 50	03 55	04 35	05 08	04 44	04 57	05 11	
	03	198 16.6	53.3	203	08.5	14.0	6 59.9	15.5	57.0	52	03 48	04 31	05 06	04 43	04 54	05 06	
	04	213 16.7	54.2	217	41.5	13.9	7 15.4	15.3	57.1	54	03 41	04 26	05 03	04 43	04 51	05 00	
	05	228 16.9	55.2	232	14.4	13.9	7 30.7	15.4	57.1	56	03 32	04 20	04 59	04 42	04 47	04 54	
	06	243 17.1	56.1	246	47.3	13.8	7 46.1	15.4	57.1	58	03 23	04 14	04 55	04 41	04 43	04 47	
	07	258 17.2	57.0	261	20.1	13.7	8 01.5	15.3	57.1	S 60	03 11	04 07	04 51	04 40	04 39	04 38	
TUE	08	273 17.4 S	6 58.0	275	52.8	13.7 S	8 16.8	15.3	57.2								
	09	288 17.5	58.9	290	25.5	13.6	8 32.1	15.3	57.2								
	10	303 17.7	59.9	304	58.1	13.6	8 47.4	15.2	57.2								
	11	318 17.9	00.8	319	30.7	13.5	9 02.6	15.2	57.2								
	12	333 18.0	01.8	334	03.2	13.4	9 17.8	15.2	57.2								
	13	348 18.2	02.7	348	35.6	13.3	9 33.0	15.2	57.3								
	14	3 18.3 S	7 03.7	3 07.9	13.3 S	9 48.2	15.1	57.3	N 70	16 37	17 38	18 49	16 18	15 47	15 02		
	15	18 18.5	04.6	17	40.2	13.2	10 03.3	15.1	57.3	68	16 44	17 40	18 44	16 23	16 00	15 30	
	16	33 18.7	05.5	32	12.4	13.1	10 18.4	15.1	57.3	66	16 50	17 42	18 41	16 28	16 12	15 52	
	17	48 18.8	06.5	46	44.5	13.1	10 33.5	15.0	57.4	64	16 55	17 43	18 38	16 31	16 21	16 09	
WED	18	63 19.0	07.4	61	16.6	13.0	10 48.5	15.0	57.4	62	17 00	17 44	18 35	16 35	16 29	16 24	
	19	78 19.1	08.4	75	48.6	12.9	11 03.5	15.0	57.4	60	17 04	17 45	18 33	16 38	16 37	16 36	
	20	93 19.3 S	7 09.3	90	20.5	12.8 S	11 18.5	14.9	57.4	N 58	17 07	17 46	18 32	16 40	16 43	16 46	
	21	108 19.5	10.3	104	52.3	12.7	11 33.4	14.8	57.5	56	17 10	17 47	18 30	16 43	16 48	16 56	
	22	123 19.6	11.2	119	24.0	12.7	11 48.2	14.9	57.5	54	17 13	17 48	18 29	16 45	16 53	17 04	
	23	138 19.8	12.1	133	55.7	12.6	12 03.1	14.7	57.5	52	17 15	17 49	18 28	16 47	16 58	17 11	
	01	153 19.9	13.1	148	27.3	12.5	12 17.8	14.8	57.5	50	17 18	17 50	18 27	16 49	17 02	17 18	
	02	168 20.1	14.0	162	58.8	12.4	12 32.6	14.7	57.6	45	17 23	17 52	18 26	16 53	17 11	17 33	
	03	183 20.2 S	7 15.0	177	30.2	12.3 S	12 47.3	14.6	57.6	N 40	17 27	17 54	18 25	16 56	17 19	17 45	
	04	198 20.4	15.9	192	01.5	12.3	13 01.9	14.6	57.6	35	17 31	17 56	18 25	16 59	17 25	17 55	
THU	05	213 20.6	16.9	206	32.8	12.2	13 16.5	14.5	57.6	30	17 34	17 58	18 26	17 01	17 31	18 04	
	06	228 20.7	17.8	221	04.0	12.0	13 31.0	14.5	57.6	20	17 40	18 02	18 28	17 06	17 41	18 20	
	07	243 20.9	18.7	235	35.0	12.0	13 45.5	14.4	57.7	N 10	17 45	18 06	18 31	17 09	17 50	18 33	
	08	258 21.0	19.7	250	06.0	11.9	13 59.9	14.4	57.7	0	17 50	18 11	18 35	17 13	17 58	18 46	
	09	273 21.2 S	7 20.6	264	36.9	11.8 S	14 14.3	14.3	57.7	S 10	17 55	18 16	18 41	17 17	18 06	18 59	
	10	288 21.3	21.6	279	07.7	11.7	14 28.6	14.2	57.7	20	18 01	18 23	18 49	17 21	18 15	19 13	
	11	303 21.5	22.5	293	38.4	11.7	14 42.8	14.2	57.8	30	18 07	18 32	19 00	17 25	18 26	19 29	
	12	318 21.6	23.4	308	09.1	11.5	14 57.0	14.1	57.8	35	18 11	18 37	19 07	17 28	18 32	19 39	
	13	333 21.8	24.4	322	39.6	11.4	15 11.1	14.1	57.8	40	18 15	18 43	19 16	17 30	18 38	19 49	
	14	348 22.0	25.3	337	10.0	11.4	15 25.2	14.0	57.8	45	18 20	18 50	19 27	17 34	18 46	20 02	
FRI	15	3 22.1 S	7 26.3	351	40.4	11.2 S	15 39.2	13.9	57.8	S 50	18 26	19 00	19 40	17 38	18 56	20 17	
	16	18 22.3	27.2	6	10.6	11.2	15 53.1	13.8	57.9	52	18 29	19 04	19 47	17 40	19 00	20 25	
	17	33 22.4	28.1	20	40.8	11.0	16 06.9	13.8	57.9	54	18 32	19 09	19 55	17 42	19 05	20 33	
	18	48 22.6	29.1	35	10.8	11.0	16 20.7	13.7	57.9	56	18 36	19 15	20 03	17 44	19 11	20 42	
	19	63 22.7	30.0	49	40.8	10.8	16 34.4	13.6	57.9	58	18 40	19 21	20 13	17 47	19 17	20 52	
	20	78 22.9	30.9	64	10.6	10.8	16 48.0	13.6	57.9	S 60	18 44	19 28	20 25	17 50	19 24	21 05	
	21	93 23.0 S	7 31.9	78	40.4	10.6 S	17 01.6	13.5	58.0								
	22	108 23.2	32.8	93	10.0	10.6	17 15.1	13.4	58.0								
	23	123 23.3	33.8	107	39.6	10.4	17 28.5	13.3	58.0								
	24	138 23.5	34.7	122	09.0	10.4	17 41.8	13.2	58.0								
SAT	01	153 23.6	35.6	136	38.4	10.2	17 55.0	13.1	58.0								
	02	168 23.8	36.6	151	07.6	10.1	18 08.1	13.1	58.1								
	S.D. 16.0 d 0.9 S.D. 15.4 15.6 15.8																
	Day	Eqn. of Time		Mer. Pass.		Mer. Upper		Pass. Lower		Age		Phase					
10	12 50	12 58	11 47	11 03	23 25	29											
11	13 05	13 13	11 47	11 47	24 10	00											
12	13 21	13 28	11 47	12 34	00 10	01											

G.M.T.		ARIES		VENUS -3.4		MARS +0.2		JUPITER -1.2		SATURN +0.1		STARS						
G.H.A.		G.H.A.		Dec.		G.H.A.		Dec.		G.H.A.		Dec.		Name	S.H.A.	Dec.		
d	h	°	'	°	'	°	'	°	'	°	'	°	'		°	'		
MONDAY	00	13	22.7	206	01.0	N 3 35.2	95	49.0	S 25 04.2	185	12.4	S 5 42.0	346	04.5	N 11 11.6	Acamar	315 42.8	S 40 25.2
	01		36 25.2	221	00.6	34.0	110	49.6	04.0	200	14.4	42.2	1	07.1	11.5	Achernar	335 50.3	S 57 23.2
	02		51 27.6	236	00.2	32.8	125	50.2	03.8	215	16.3	42.4	16	09.8	11.5	Acrux	173 47.3	S 62 55.8
	03		66 30.1	250	59.8	.. 31.6	140	50.8	.. 03.5	230	18.3	.. 42.6	31	12.4	.. 11.4	Adhara	255 38.4	S 28 55.4
	04		81 32.5	265	59.4	30.4	155	51.4	03.3	245	20.3	42.8	46	15.1	11.3	Aldebaran	291 27.0	N 16 27.2
	05		96 35.0	280	59.1	29.3	170	52.0	03.1	260	22.2	43.0	61	17.7	11.3			
	06		111 37.5	295	58.7	N 3 28.1	185	52.6	S 25 02.8	275	24.2	S 5 43.2	76	20.4	N 11 11.2	Alioth	166 49.7	N 56 07.4
	07		126 39.9	310	58.3	26.9	200	53.2	02.6	290	26.1	43.4	91	23.0	11.1	Alkaid	153 25.0	N 49 27.8
	08		141 42.4	325	57.9	25.7	215	53.9	02.4	305	28.1	43.7	106	25.6	11.1	Al Na'ir	28 24.5	S 47 06.6
	09		156 44.9	340	57.5	.. 24.5	230	54.5	.. 02.2	320	30.1	.. 43.9	121	28.3	.. 11.0	Alnilam	276 19.6	S 1 12.9
	10		171 47.3	355	57.1	23.3	245	55.1	01.9	335	32.0	44.1	136	30.9	10.9	Alphard	218 28.6	S 8 31.4
	11		186 49.8	10	56.7	22.2	260	55.7	01.7	350	34.0	44.3	151	33.6	10.9			
	12		201 52.3	25	56.3	N 3 21.0	275	56.3	S 25 01.5	5 35.9	S 5 44.5	166	36.2	N 11 10.8	Alphecca	126 39.1	N 26 49.0	
	13		216 54.7	40	55.9	19.8	290	56.9	01.2	20	37.9	44.7	181	38.9	10.8	Alpheratz	358 17.4	N 28 55.6
	14		231 57.2	55	55.5	18.6	305	57.5	01.0	35	39.9	44.9	196	41.5	10.7	Altair	62 40.3	N 8 47.3
	15		246 59.6	70	55.2	.. 17.4	320	58.1	.. 00.8	50	41.8	.. 45.1	211	44.2	.. 10.6	Ankaa	353 47.5	S 42 28.1
	16		262 02.1	85	54.8	16.2	335	58.7	00.5	65	43.8	45.3	226	46.8	10.6	Antares	113 07.0	S 26 22.1
	17		277 04.6	100	54.4	15.0	350	59.4	00.3	80	45.8	45.5	241	49.4	10.5			
	18		292 07.0	115	54.0	N 3 13.9	6	00.0	S 25 00.1	95	47.7	S 5 45.7	256	52.1	N 11 10.4	Arcturus	146 26.0	N 19 20.4
	19		307 09.5	130	53.6	12.7	21	00.6	24 59.8	110	49.7	45.9	271	54.7	10.4	Atria	108 38.9	S 68 58.8
	20		322 12.0	145	53.2	11.5	36	01.2	59.6	125	51.6	46.1	286	57.4	10.3	Avior	234 31.9	S 59 24.3
	21		337 14.4	160	52.8	.. 10.3	51	01.8	.. 59.4	140	53.6	.. 46.3	302	00.0	.. 10.2	Bellatrix	279 07.2	N 6 19.7
	22		352 16.9	175	52.4	09.1	66	02.4	59.1	155	55.6	46.5	317	02.7	10.2	Betelgeuse	271 36.8	N 7 24.4
	23		7 19.4	190	52.0	07.9	81	03.0	58.9	170	57.5	46.8	332	05.3	10.1			
TUESDAY	00	14	22 21.8	205	51.7	N 3 06.7	96	03.6	S 24 58.6	185	59.5	S 5 47.0	347	08.0	N 11 10.1	Canopus	264 10.7	S 52 40.2
	01		37 24.3	220	51.3	05.5	111	04.2	58.4	201	01.4	47.2	2	10.6	10.0	Capella	281 22.9	N 45 58.2
	02		52 26.7	235	50.9	04.4	126	04.8	58.2	216	03.4	47.4	17	13.2	09.9	Deneb	49 53.9	N 45 10.5
	03		67 29.2	250	50.5	.. 03.2	141	05.5	.. 57.9	231	05.4	.. 47.6	32	15.9	.. 09.9	Denebola	183 07.4	N 14 44.5
	04		82 31.7	265	50.1	02.0	156	06.1	57.7	246	07.3	47.8	47	18.5	09.8	Diphda	349 28.5	S 18 09.0
	05		97 34.1	280	49.7	3 00.8	171	06.7	57.5	261	09.3	48.0	62	21.2	09.7			
	06		112 36.6	295	49.3	N 2 59.6	186	07.3	S 24 57.2	276	11.2	S 5 48.2	77	23.8	N 11 09.7	Dubhe	194 32.1	N 61 54.8
	07		127 39.1	310	48.9	58.4	201	07.9	57.0	291	13.2	48.4	92	26.5	09.6	Elmath	278 54.1	N 28 35.1
	08		142 41.5	325	48.5	57.2	216	08.5	56.7	306	15.2	48.6	107	29.1	09.5	Eltanin	91 01.6	N 51 29.7
	09		157 44.0	340	48.2	.. 56.0	231	09.1	.. 56.5	321	17.1	.. 48.8	122	31.8	.. 09.5	Enif	34 19.3	N 9 44.2
	10		172 46.5	355	47.8	54.8	246	09.7	56.3	336	19.1	49.0	137	34.4	09.4	Fomalhaut	15 59.8	S 29 47.0
	11		187 48.9	10	47.4	53.6	261	10.3	56.0	351	21.0	49.2	152	37.1	09.3			
	12		202 51.4	25	47.0	N 2 52.5	276	10.9	S 24 55.8	6	23.0	S 5 49.4	167	39.7	N 11 09.3	Gacrux	172 38.6	S 56 56.5
	13		217 53.9	40	46.6	51.3	291	11.5	55.5	21	25.0	49.6	182	42.3	09.2	Gienah	176 26.6	S 17 22.3
	14		232 56.3	55	46.2	50.1	306	12.1	55.3	36	26.9	49.9	197	45.0	09.2	Hadar	149 35.7	S 60 13.7
	15		247 58.8	70	45.8	.. 48.9	321	12.8	.. 55.1	51	28.9	.. 50.1	212	47.6	.. 09.1	Hamal	328 37.7	N 23 19.4
	16		263 01.2	85	45.4	47.7	336	13.4	54.8	66	30.8	50.3	227	50.3	09.0	Kaus Aust.	84 27.5	S 34 24.2
	17		278 03.7	100	45.1	46.5	351	14.0	54.6	81	32.8	50.5	242	52.9	09.0			
	18		293 06.2	115	44.7	N 2 45.3	6	14.6	S 24 54.3	96	34.8	S 5 50.7	257	55.6	N 11 08.9	Kochab	137 19.1	N 74 16.8
	19		308 08.6	130	44.3	44.1	21	15.2	54.1	111	36.7	50.9	272	58.2	08.8	Markab	14 10.9	N 15 02.7
	20		323 11.1	145	43.9	42.9	36	15.8	53.8	126	38.7	51.1	288	00.9	08.8	Menkar	314 49.2	N 3 58.6
	21		338 13.6	160	43.5	.. 41.7	51	16.4	.. 53.6	141	40.6	.. 51.3	303	03.5	.. 08.7	Menkent	148 47.0	S 36 13.4
	22		353 16.0	175	43.1	40.5	66	17.0	53.3	156	42.6	51.5	318	06.2	08.6	Miaplacidus	221 47.5	S 69 35.1
	23		8 18.5	190	42.7	39.3	81	17.6	53.1	171	44.6	51.7	333	08.8	08.6			
WEDNESDAY	00	15	23 21.0	205	42.3	N 2 38.2	96	18.2	S 24 52.9	186	46.5	S 5 51.9	348	11.5	N 11 08.5	Mirfak	309 27.3	N 49 45.4
	01		38 23.4	220	42.0	37.0	111	18.8	52.6	201	48.5	52.1	3	14.1	08.4	Nunki	76 39.1	S 26 20.3
	02		53 25.9	235	41.6	35.8	126	19.4	52.4	216	50.5	52.3	18	16.7	08.4	Peacock	54 10.7	S 56 50.3
	03		68 28.4	250	41.2	.. 34.6	141	20.0	.. 52.1	231	52.4	.. 52.5	33	19.4	.. 08.3	Pollux	244 07.9	N 28 06.1
	04		83 30.8	265	40.8	33.4	156	20.6	51.9	246	54.4	52.7	48	22.0	08.3	Procyon	245 34.1	N 5 18.4
	05		98 33.3	280	40.4	32.2	171	21.2	51.6	261	56.3	53.0	63	24.7	08.2			
	06		113 35.7	295	40.0	N 2 31.0	186	21.8	S 24 51.4	276	58.3	S 5 53.2	78	27.3	N 11 08.1	Rasalhague	96 37.2	N 12 34.9
	07		128 38.2	310	39.6	29.8	201	22.5	51.1	292	00.3	53.4	93	30.0	08.1	Regulus	208 18.7	N 12 07.1
	08		143 40.7	325	39.2	28.6	216	23.1	50.9	307	02.2	53.6	108	32.6	08.0	Rigel	281 43.5	S 8 13.8
	09		158 43.1	340	38.9	.. 27.4	231	23.7	.. 50.6	322	04.2	.. 53.8	123	35.3	.. 07.9	Rigel Kent.	140 37.6	S 60 42.7
	10		173 45.6	355	38.5	26.2	246	24.3	50.4	337	06.1	54.0	138	37.9	07.9	Sabik	102 50.5	S 15 41.4
	11		188 48.1	10	38.1	25.0	261	24.9	50.1	352	08.1	54.2	153	40.6	07.8			
	12		203 50.5	25	37.7	N 2 23.8	276	25.5	S 24 49.9	7	10.1	S 5 54.4	168	43.2	N 11 07.7	Schedar	350 17.9	N 56 22.5
	13		218 53.0	40	37.3	22.6	291	26.1	49.6	22	12.0	54.6	183	45.9	07.7	Shaula	97 06.9	S 37 05.2
	14		233 55.5	55	36.9	21.4	306	26.7	49.4	37	14.0	54.8	198	48.5	07.6	Sirius	259 02.7	S 16 40.1
	15		248 57.9	70	36.5	.. 20.2	321	27.3	.. 49.1	52	15.9	.. 55.0	213	51.2	.. 07.5	Spica	159 06.3	N 11 00.2
	16		264 00.4	85	36.2	19.0	336	27.9	48.9	67	17.9	55.2	228	53.8	07.5	Suhail	223 17.0	S 43 18.2
	17		279 02.9															

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise									
		G.H.A.	Dec.	G.H.A.	φ	Dec.	d		H.P.	Naut.	Civil	h m	13	14	15	16					
d	h	°	'	°	'	°	'	'	°	h m	h m	h m	h m	h m	h m	h m	h m				
13 MOON DAY	00	183	23.9 S	7	37.5	165	36.7	10.1	S	18	21.2	13.0	58.1	N 72	04 50	06 08	07 18	■	■	■	■
	01	198	24.1		38.5	180	05.8	9.9	S	18	34.2	12.8	58.1	N 70	04 54	06 05	07 08	■	■	■	■
	02	213	24.2		39.4	194	34.7	9.8	S	18	47.0	12.8	58.1	68	04 58	06 02	06 59	12 11	■	■	■
	03	228	24.4		40.3	209	03.5	9.7	S	18	59.8	12.7	58.1	66	05 01	06 00	06 52	11 16	■	■	■
	04	243	24.5		41.3	223	32.2	9.6	S	19	12.5	12.6	58.2	64	05 03	05 58	06 46	10 44	13 23	■	■
	05	258	24.7		42.2	238	00.8	9.5	S	19	25.1	12.5	58.2	62	05 05	05 56	06 41	10 20	12 26	■	■
	06	273	24.8 S	7	43.1	252	29.3	9.4	S	19	37.6	12.4	58.2	60	05 06	05 54	06 36	10 01	11 53	13 45	15 08
	07	288	25.0		44.1	266	57.7	9.3	S	19	50.0	12.3	58.2	N 58	05 07	05 52	06 32	09 45	11 29	13 08	14 25
	08	303	25.1		45.0	281	26.0	9.2	S	20	02.3	12.2	58.2	56	05 08	05 51	06 29	09 32	11 09	12 42	13 56
	09	318	25.3		45.9	295	54.2	9.1	S	20	14.5	12.0	58.3	54	05 09	05 50	06 25	09 21	10 53	12 21	13 34
	10	333	25.4		46.9	310	22.3	8.9	S	20	26.5	12.0	58.3	52	05 09	05 48	06 23	09 11	10 39	12 04	13 15
	11	348	25.6		47.8	324	50.2	8.9	S	20	38.5	11.9	58.3	50	05 10	05 47	06 20	09 02	10 27	11 49	13 00
	12	3 25.7 S	7	48.7	339	18.1	8.7	S	20	50.4	11.8	58.3	45	05 10	05 44	06 14	08 43	10 02	11 19	12 28	
	13	18 25.9		49.7	353	45.8	8.6	S	21	02.4	11.6	58.3	N 40	05 10	05 42	06 09	08 28	09 43	10 56	12 04	
	14	33 26.0		50.6	8 13.4	8.6	21	13.8	11.5	58.3	30	05 09	05 37	06 01	08 04	09 12	10 21	11 27			
	15	48 26.2		51.5	22 41.0	8.4	21	25.3	11.5	58.4	20	05 07	05 32	05 54	07 45	08 48	09 53	10 58			
	16	63 26.3		52.5	37 08.4	8.3	21	36.8	11.3	58.4	N 10	05 03	05 27	05 48	07 28	08 27	09 29	10 33			
	17	78 26.5		53.4	51 35.7	8.2	21	48.1	11.1	58.4	0	04 58	05 22	05 43	07 13	08 08	09 07	10 10			
	18	93 26.6 S	7	54.3	66 02.9	8.0	S	21	59.2	11.1	58.4	S 10	04 51	05 16	05 37	06 58	07 49	08 46	09 47		
	19	108 26.8		55.3	80 29.9	8.0	S	22	10.3	10.9	58.4	20	04 42	05 08	05 31	06 42	07 29	08 22	09 22		
	20	123 26.9		56.2	94 56.9	7.9	S	22	21.2	10.9	58.4	30	04 31	04 59	05 23	06 24	07 06	07 55	08 53		
	21	138 27.1		57.1	109 23.8	7.7	S	22	32.1	10.7	58.5	35	04 23	04 53	05 19	06 13	06 52	07 39	08 36		
	22	153 27.2		58.1	123 50.5	7.7	S	22	42.8	10.5	58.5	40	04 14	04 47	05 14	06 01	06 36	07 21	08 17		
	23	168 27.4		59.0	138 17.2	7.5	S	22	53.3	10.4	58.5	45	04 02	04 38	05 09	05 47	06 18	06 59	07 53		
14 TUESDAY	00	183	27.5 S	7	59.9	152	43.7	7.4	S	23	03.7	10.4	58.5	S 50	03 47	04 28	05 02	05 30	05 55	06 31	07 22
	01	198	27.7	8	00.9	167	10.1	7.3	S	23	14.1	10.1	58.5	52	03 40	04 23	04 59	05 22	05 44	06 17	07 06
	02	213	27.8		01.8	181	36.4	7.2	S	23	24.2	10.1	58.5	54	03 32	04 18	04 55	05 13	05 32	06 01	06 49
	03	228	27.9		02.7	196	02.6	7.1	S	23	34.3	9.9	58.6	56	03 23	04 12	04 51	05 03	05 18	05 43	06 27
	04	243	28.1		03.7	210	28.7	7.0	S	23	44.2	9.7	58.6	58	03 12	04 05	04 47	04 52	05 01	05 20	05 59
	05	258	28.2		04.6	224	54.7	6.9	S	23	53.9	9.6	58.6	S 60	03 00	03 58	04 42	04 39	04 42	04 51	05 20
	06	273	28.4 S	8	05.5	239	20.6	6.8	S	24	03.5	9.5	58.6								
	07	288	28.5		06.5	253	46.4	6.6	S	24	13.0	9.3	58.6								
	08	303	28.7		07.4	268	12.0	6.6	S	24	22.3	9.2	58.6								
	09	318	28.8		08.3	282	37.6	6.4	S	24	31.5	9.1	58.6								
	10	333	29.0		09.3	297	03.0	6.4	S	24	40.6	8.9	58.7								
	11	348	29.1		10.2	311	28.4	6.3	S	24	49.5	8.7	58.7								
	12	3 29.2 S	8	11.1	325	53.7	6.1	S	24	58.2	8.6	58.7	N 72	16 12	17 22	18 40	■	■	■	■	
	13	18 29.4		12.1	340	18.8	6.0	S	25	06.8	8.5	58.7	N 70	16 23	17 25	18 36	■	■	■	■	
	14	33 29.5		13.0	354	43.8	6.0	S	25	15.3	8.3	58.7	68	16 32	17 28	18 32	14 22	■	■	■	
	15	48 29.7		13.9	9 08.8	5.8	25	23.6	8.1	58.7	66	16 39	17 31	18 30	15 18	■	■	■	■		
	16	63 29.8		14.8	23 33.6	5.8	25	31.7	8.0	58.7	64	16 45	17 33	18 28	15 52	15 09	■	■	■		
	17	78 30.0		15.8	37 58.4	5.7	25	39.7	7.8	58.8	62	16 50	17 35	18 26	16 17	16 07	■	■	■		
	18	93 30.1 S	8	16.7	52 23.1	5.5	S	25	47.5	7.6	58.8	60	16 55	17 37	18 25	16 36	16 40	16 54	17 43		
	19	108 30.2		17.6	66 47.6	5.5	S	25	55.1	7.5	58.8	N 58	16 59	17 39	18 24	16 53	17 05	17 31	18 26		
	20	123 30.4		18.6	81 12.1	5.3	S	26	02.6	7.3	58.8	56	17 02	17 40	18 23	17 07	17 25	17 58	18 55		
	21	138 30.5		19.5	95 36.4	5.3	S	26	09.9	7.2	58.8	54	17 06	17 42	18 22	17 19	17 42	18 19	19 17		
	22	153 30.7		20.4	110 00.7	5.2	S	26	17.1	7.0	58.8	52	17 09	17 43	18 22	17 30	17 56	18 36	19 35		
	23	168 30.8		21.4	124 24.9	5.1	S	26	24.1	6.8	58.8	50	17 11	17 44	18 21	17 39	18 09	18 51	19 51		
15 WEDNESDAY	00	183	30.9 S	8	22.3	138	49.0	5.0	S	26	30.9	6.7	58.8	45	17 18	17 47	18 21	18 00	18 35	19 22	20 22
	01	198	31.1		23.2	153	13.0	5.0	S	26	37.6	6.5	58.8	N 40	17 23	17 50	18 21	18 16	18 55	19 45	20 47
	02	213	31.2		24.1	167	37.0	4.8	S	26	44.1	6.3	58.9	35	17 27	17 52	18 22	18 30	19 13	20 05	21 07
	03	228	31.4		25.1	182	00.8	4.6	S	26	50.4	6.1	58.9	30	17 31	17 55	18 23	18 42	19 28	20 22	21 24
	04	243	31.5		26.0	196	24.6	4.6	S	26	56.5	6.0	58.9	20	17 38	18 00	18 25	19 03	19 53	20 50	21 52
	05	258	31.6		26.9	210	48.2	4.6	S	27	02.5	5.8	58.9	N 10	17 44	18 05	18 29	19 22	20 15	21 14	22 17
	06	273	31.8 S	8	27.8	225	11.8	4.6	S	27	08.3	5.6	58.9	0	17 49	18 10	18 34	19 39	20 36	21 37	22 40
	07	288	31.9		28.8	239	35.4	4.4	S	27	13.9	5.4	58.9	S 10	17 55	18 17	18 41	19 56	20 57	22 00	23 03
	08	303	32.1		29.7	253	58.8	4.3	S	27	19.3	5.3	58.9	20	18 02	18 24	18 50	20 15	21 19	22 24	23 27
	09	318	32.2		30.6	268	22.2	4.3	S	27	24.6	5.1	58.9	30	18 09	18 34	19 02	20 36	21 45	22 52	23 56
	10	333	32.3		31.5	282	45.5	4.2	S	27	29.7	4.9	58.9	35	18 14	18 39	19 10	20 49	22 00	23 09	24 12
	11	348	32.5		32.5	297	08.7	4.2	S	27	34.6	4.7	59.0	40	18 18	18 46	19 19	21 03	22 18	23 29	24 32
	12	3 32.6 S	8	33.4	311	31.9	4.1	S	27	39.3	4.5	59.0	45	18 24	18 55	19 31	21 21	22 39	23 53	24 55	
	13	18 32.7		34.3	325	55.0	4.0	S	27	43.8	4.3	59.0	S 50	18 31	19 05	19 46	21 42	23 07	24 23	00 23	
	14	33 32.9		35.2	340	18.0	4.0	S	27	48.1	4.2	59.0	52	18 34	19 10	19 53	21 53	23 20	24 39	00 39	
	15	48 33.0		36.2	354	41.0	3.9	S	27	52.3	4.0	59.0	54	18 38	19 15	20 02	22 04	23 35	24 57	00 57	
	16	63 33.2		37.1	9 03.9	3.9	S	27	56.3	3.7	59.0	56	18 42	19 22	20 11	22 18	23 53	25 18	01 18		
	17	78 33.3		38.0	23 26.8	3.8	S	28	00.0	3.6	59.0	58	18 46	19 29	20 22	22 34	24 16	00 16	01 45		
	18	93 33.4 S	8	38.9	37 49.6	3.8	S	28	03.6	3.4	59.0	S 60	18 51	19 37	20 35	22 52	24 44	00 44	02 25		
	19	108 33.6		39.9	52 12.4	3.7	S	28	07.0	3.3	59.0										
	20	123 33.7		40.8	66 35.1	3.6	S	28	10.3	3.0	59.0										
	21	138 33.8		41.7	80 57.7	3.7	S	28	13.3	2.8	59.0										
	22	153 34.0		42.6	95 20.4	3.5	S	28	16.1	2.6	59.0										

G.M.T.	ARIES			VENUS -3.4			MARS -0.2			JUPITER -1.2			SATURN -0.1			STARS		
	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h																		
16 00	24 20-1	205 33-1 N	2 09-5	96 32-7 S	24 46-8	187 33-6 S	5 56-9	349 15-0 N	11 07-0	Acamar	315 42-8	S 40 25-2						
01	39 22-6	220 32-7	08-3	111 33-3	46-6	202 35-2	57-1	4 17-6	06-9	Alkaid	335 50-3	S 57 23-2						
02	54 25-0	235 32-3	07-1	126 33-9	46-3	217 37-5	57-3	19 20-3	06-8	Achernar	173 47-3	S 62 55-8						
03	69 27-5	250 31-9	05-9	141 34-5	46-1	232 39-5	57-5	34 22-9	06-8	Adhara	255 38-4	S 28 55-4						
04	84 30-0	265 31-5	04-7	156 35-1	45-8	247 41-4	57-7	49 25-6	06-7	Aldebaran	291 27-0	N 16 27-2						
05	99 32-4	280 31-1	03-5	171 35-7	45-6	262 43-4	57-9	64 28-2	06-6									
06	114 34-9	295 30-7 N	2 02-3	186 36-3 S	24 45-3	277 45-3 S	5 58-1	79 30-9 N	11 06-6	Alioth	166 49-7	N 56 07-4						
07	129 37-4	310 30-4	2 01-1	201 36-9	45-0	292 47-3	58-3	94 33-5	06-5	Alkaid	153 25-0	N 49 27-8						
08	144 39-8	325 30-0	1 59-9	216 37-5	44-8	307 49-3	58-5	109 36-2	06-4	Al Na'ir	28 24-5	S 47 06-6						
09	159 42-3	340 29-6	1 58-7	231 38-1	44-5	322 51-2	58-7	124 38-8	06-4	Alnilam	276 19-6	S 1 12-9						
10	174 44-7	355 29-2	57-5	246 38-7	44-3	337 53-2	58-9	139 41-5	06-3	Alphard	218 28-6	S 8 31-4						
11	189 47-2	10 28-8	56-3	261 39-3	44-0	352 55-1	59-2	154 44-1	06-2									
12	204 49-7	25 28-4 N	1 55-1	276 39-9 S	24 43-7	7 57-1 S	5 59-4	169 46-8 N	11 06-2	Alphecca	126 39-1	N 26 49-0						
13	219 52-1	40 28-0	53-9	291 40-5	43-5	22 59-1	59-6	184 49-4	06-1	Alpheratz	358 17-4	N 28 55-6						
14	234 54-6	55 27-7	52-7	306 41-1	43-2	38 01-0	5 59-8	199 52-1	06-1	Altair	62 40-4	N 8 47-3						
15	249 57-1	70 27-3	51-5	321 41-7	43-0	53 03-0	6 00-3	214 54-7	06-0	Ankaa	353 47-5	S 42 28-1						
16	264 59-5	85 26-9	50-3	336 42-3	42-7	68 04-9	00-2	229 57-4	05-9	Antares	113 07-0	S 26 22-1						
17	280 02-0	100 26-5	49-1	351 42-9	42-4	83 06-9	00-4	245 00-0	05-9									
18	295 04-5	115 26-1 N	1 47-9	6 43-5 S	24 42-2	98 08-9 S	6 00-6	260 02-7 N	11 05-8	Arcturus	146 26-0	N 19 20-4						
19	310 06-9	130 25-7	46-7	21 44-1	41-9	113 10-8	00-8	275 05-3	05-7	Atria	108 38-9	S 68 58-8						
20	325 09-4	145 25-3	45-5	36 44-7	41-7	128 12-8	01-0	290 08-0	05-7	Avior	234 31-8	S 59 24-2						
21	340 11-9	160 24-9	44-3	51 45-3	41-4	143 14-8	01-2	305 10-6	05-6	Bellatrix	279 07-1	N 6 19-7						
22	355 14-3	175 24-6	43-1	66 45-9	41-1	158 16-7	01-4	320 13-3	05-5	Betelgeuse	271 36-8	N 7 24-4						
23	10 16-8	190 24-2	41-9	81 46-5	40-9	173 18-7	01-6	335 15-9	05-5									
17 00	25 19-2	205 23-8 N	1 40-7	96 47-1 S	24 40-6	188 20-6 S	6 01-8	350 18-6 N	11 05-4	Canopus	264 10-6	S 52 40-2						
01	40 21-7	220 23-4	39-5	111 47-7	40-3	203 22-6	02-0	5 21-2	05-3	Capella	281 22-9	N 45 58-2						
02	55 24-2	235 23-0	38-3	126 48-3	40-1	218 24-6	02-2	20 23-9	05-3	Deneb	49 53-9	N 45 10-5						
03	70 26-6	250 22-6	37-1	141 48-9	39-8	233 26-5	02-4	35 26-5	05-2	Denebola	183 07-4	N 14 44-5						
04	85 29-1	265 22-2	35-9	156 49-5	39-5	248 28-5	02-6	50 29-2	05-1	Diphda	349 28-5	S 18 09-0						
05	100 31-6	280 21-9	34-7	171 50-1	39-3	263 30-4	02-8	65 31-8	05-1									
06	115 34-0	295 21-5 N	1 33-5	186 50-7 S	24 39-0	278 32-4 S	6 03-1	80 34-5 N	11 05-0	Dubhe	194 32-1	N 61 54-8						
07	130 36-5	310 21-1	32-3	201 51-3	38-7	293 34-4	03-3	95 37-1	05-0	Elnath	278 54-1	N 28 35-1						
08	145 39-0	325 20-7	31-1	216 51-9	38-5	308 36-3	03-5	110 39-8	04-9	Elcanin	91 01-7	N 51 29-7						
09	160 41-4	340 20-3	29-9	231 52-5	38-2	323 38-3	03-7	125 42-4	04-8	Enif	34 19-3	N 9 44-2						
10	175 43-9	355 19-9	28-7	246 53-1	37-9	338 40-2	03-9	140 45-1	04-8	Fomalhaut	15 59-8	S 29 47-0						
11	190 46-4	10 19-5	27-5	261 53-7	37-7	353 42-2	04-1	155 47-7	04-7									
12	205 48-8	25 19-2 N	1 26-3	276 54-3 S	24 37-4	8 44-2 S	6 04-3	170 50-4 N	11 04-6	Gacrux	172 38-6	S 56 56-5						
13	220 51-3	40 18-8	25-1	291 54-9	37-1	23 46-1	04-5	185 53-0	04-6	Gienah	176 26-6	S 17 22-3						
14	235 53-7	55 18-4	23-9	306 55-5	36-9	38 48-1	04-7	200 55-7	04-5	Hadar	149 35-7	S 60 13-7						
15	250 56-2	70 18-0	22-7	321 56-1	36-6	53 50-0	04-9	215 58-3	04-4	Hamal	328 37-7	N 23 19-4						
16	265 58-7	85 17-6	21-5	336 56-7	36-3	68 52-0	05-1	231 01-0	04-4	Kaus Aust.	84 27-6	S 34 24-2						
17	281 01-1	100 17-2	20-3	351 57-3	36-1	83 54-0	05-3	246 03-6	04-3									
18	296 03-6	115 16-8 N	1 19-1	6 57-9 S	24 35-8	98 55-9 S	6 05-5	261 06-3 N	11 04-2	Kochab	137 19-1	N 74 16-7						
19	311 06-1	130 16-5	17-8	21 58-5	35-5	113 57-9	05-7	276 08-9	04-2	Markab	14 11-0	N 15 02-7						
20	326 08-5	145 16-1	16-6	36 59-1	35-2	128 59-9	05-9	291 11-6	04-1	Menkar	314 49-2	N 3 58-6						
21	341 11-0	160 15-7	15-4	51 59-7	35-0	144 01-8	05-1	306 14-2	04-0	Menkent	148 47-0	S 36 13-3						
22	356 13-5	175 15-3	14-2	67 00-3	34-7	159 03-8	06-3	321 16-9	04-0	Miaplacidus	221 47-5	S 69 35-1						
23	11 15-9	190 14-9	13-0	82 00-9	34-4	174 05-7	06-5	336 19-5	03-9									
18 00	26 18-4	205 14-5 N	1 11-8	97 01-5 S	24 34-1	189 07-7 S	6 06-8	351 22-2 N	11 03-9	Mirfak	309 27-3	N 49 45-4						
01	41 20-9	220 14-1	10-6	112 02-1	33-9	204 09-7	07-0	6 24-8	03-8	Nunki	76 39-1	S 26 20-3						
02	56 23-3	235 13-8	09-4	127 02-7	33-6	219 11-6	07-2	21 27-5	03-7	Peacock	54 10-7	S 56 50-3						
03	71 25-8	250 13-4	08-2	142 03-3	33-3	234 13-6	07-4	36 30-1	03-7	Pollux	244 07-9	N 28 06-1						
04	86 28-2	265 13-0	07-0	157 03-9	33-0	249 15-5	07-6	51 32-8	03-6	Procyon	245 34-1	N 5 18-4						
05	101 30-7	280 12-6	05-8	172 04-5	32-8	264 17-5	07-8	66 35-4	03-5									
06	116 33-2	295 12-2 N	1 04-6	187 05-1 S	24 32-5	279 19-5 S	6 08-0	81 38-1 N	11 03-5	Rasalhague	96 37-2	N 12 34-9						
07	131 35-6	310 11-8	03-4	202 05-7	32-2	294 21-4	08-2	96 40-7	03-4	Regulus	208 18-6	N 12 07-1						
08	146 38-1	325 11-4	02-2	217 06-3	31-9	309 23-4	08-4	111 43-4	03-3	Rigel	281 43-5	S 8 13-8						
09	161 40-6	340 11-1	1 01-0	232 06-9	31-7	324 25-3	08-6	126 46-0	03-3	Rigel Kent.	140 37-6	S 60 42-7						
10	176 43-0	355 10-7	0 59-8	247 07-5	31-4	339 27-3	08-8	141 48-7	03-2	Sabik	102 50-5	S 15 41-4						
11	191 45-5	10 10-3	58-6	262 08-1	31-1	354 29-3	09-0	156 51-3	03-1									
12	206 48-0	25 09-9 N	0 57-4	277 08-7 S	24 30-8	9 31-2 S	6 09-2	171 54-0 N	11 03-1	Schedar	350 17-9	N 56 22-5						
13	221 50-4	40 09-5	56-2	292 09-3	30-6	24 33-2	09-4	186 56-6	03-0	Shaula	97 06-9	S 37 05-2						
14	236 52-9	55 09-1	55-0	307 09-9	30-3	39 35-1	09-6	201 59-3	02-9	Sirius	259 02-7	S 16 40-1						
15	251 55-3	70 08-7	53-8	322 10-5	30-0	54 37-1	09-8	217 01-9	02-9	Spica	159 06-3	S 11 00-2						
16	266 57-8	85 08-4	52-5	337 11-1	29-7	69 39-1	10-0	232 04-6	02-8	Suhail	223 17-0	S 43 18-2						
17	282 00-3	100 08-0	51-3	352 11-7	29-4	84 41-0	10-2	247 07-2	02-7									
18	297 02-7	115 07-6 N	0 50-1	7 12-3 S	24 29-2	99 43-0 S	6 10-4	262 09-9 N	11 02-7	Vega	81 01-4	N 38 45-4						
19	312 05-2	130 07-2	48-9	22 12-9	28-9	114 44-9	10-7	277 12-5	02-6	Zuben'ubi	137 42-3	S 15 55-0						
20	327 07-7	145 06-8	47-7	37 13-5	28-6	129 46-9	10-9	292 15-2	02-5									
21	342 10-1	160 06-4	46-5	52 14-1	28-3	144 48-9	11-1	307 17-8	02-5									
22	357 12-6	175 06-0																

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise						
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.		Naut.	Civil		16	17	18	19			
d	h	°	'	°	'	°	'	'	°	h	m	h	m	h	m	h	m		
16	00	183	34.2 S	8	44.5	124	05.5	3.5	S 28 21.2	2.2	59.1	N 72	05 03	06 21	07 33	■	■		
	01	198	34.4		45.4	138	28.0	3.4	28 23.4	2.1	59.1	N 70	05 06	06 17	07 20	■	■		
	02	213	34.5		46.3	152	50.4	3.5	28 25.5	1.8	59.1	68	05 08	06 13	07 10	■	■		
	03	228	34.7		47.3	167	12.9	3.4	28 27.3	1.7	59.1	66	05 10	06 09	07 02	■	■		
	04	243	34.8		48.2	181	35.3	3.4	28 29.0	1.5	59.1	64	05 11	06 06	06 55	■	■		
	05	258	34.9		49.1	195	57.7	3.3	28 30.5	1.3	59.1	62	05 12	06 03	06 49	■	■		
T H U R S D A Y	06	273	35.1 S	8	50.0	210	20.0	3.3	S 28 31.8	1.0	59.1	60	05 13	06 01	06 44	15 08	15 40		
	07	288	35.2		50.9	224	42.3	3.4	28 32.8	0.9	59.1	N 58	05 14	05 59	06 39	14 25	15 08		
	08	303	35.3		51.9	239	04.7	3.2	28 33.7	0.7	59.1	56	05 14	05 57	06 35	13 56	14 44		
	09	318	35.5		52.8	253	26.9	3.3	28 34.4	0.5	59.1	54	05 14	05 55	06 31	13 34	14 24		
	10	333	35.6		53.7	267	49.2	3.3	28 34.9	0.3	59.1	52	05 14	05 54	06 28	13 15	14 07		
	11	348	35.7		54.6	282	11.5	3.3	28 35.2	0.1	59.1	50	05 14	05 52	06 25	13 00	13 53		
S A T U R D A Y	12	3 35.8 S	8	55.5	296	33.8	3.2	S 28 35.3	0.1	59.1	45	05 14	05 48	06 18	12 28	13 24	14 07		
	13	18	36.0		56.5	310	56.0	3.3	28 35.2	0.3	59.1	N 40	05 13	05 45	06 12	12 04	13 01		
	14	33	36.1		57.4	325	18.3	3.2	28 34.9	0.5	59.2	35	05 12	05 42	06 07	11 44	12 42		
	15	48	36.2		58.3	339	40.5	3.3	28 34.4	0.7	59.2	30	05 11	05 39	06 03	11 27	12 26		
	16	63	36.4	8	59.2	354	02.8	3.3	28 33.7	0.9	59.2	20	05 07	05 33	05 55	10 58	11 58		
	17	78	36.5	9	00.1	8	25.1	3.2	28 32.8	1.1	59.2	N 10	05 03	05 27	05 48	10 33	11 35		
S U N D A Y	18	93	36.6 S	9	01.1	22	47.3	3.3	S 28 31.7	1.3	59.2	0	04 57	05 21	05 42	10 10	11 13		
	19	108	36.8		02.0	37	09.6	3.3	28 30.4	1.5	59.2	S 10	04 49	05 14	05 35	09 47	10 50		
	20	123	36.9		02.9	51	31.9	3.3	28 28.9	1.7	59.2	20	04 40	05 06	05 28	09 22	10 27		
	21	138	37.0		03.8	65	54.2	3.4	28 27.2	1.9	59.2	30	04 27	04 56	05 20	08 53	09 59		
	22	153	37.2		04.7	80	16.6	3.3	28 25.3	2.1	59.2	35	04 19	04 49	05 15	08 36	09 42		
	23	168	37.3		05.7	94	38.9	3.4	28 23.2	2.2	59.2	40	04 09	04 42	05 10	08 17	09 23		
M O N D A Y	00	183	37.4 S	9	06.6	109	01.3	3.4	S 28 21.0	2.5	59.2	45	03 56	04 33	05 04	07 53	09 00		
	01	198	37.5		07.5	123	23.7	3.4	28 18.5	2.7	59.2	S 50	03 40	04 22	04 56	07 22	08 30		
	02	213	37.7		08.4	137	46.1	3.5	28 15.8	2.8	59.2	52	03 32	04 16	04 52	07 06	08 15		
	03	228	37.8		09.3	152	08.6	3.5	28 13.0	3.1	59.2	54	03 24	04 11	04 48	06 49	07 58		
	04	243	37.9		10.2	166	31.1	3.5	28 09.9	3.2	59.2	56	03 14	04 04	04 44	06 27	07 37		
	05	258	38.1		11.2	180	53.6	3.6	28 06.7	3.5	59.2	58	03 02	03 56	04 39	05 59	07 11		
T U E S D A Y	06	273	38.2 S	9	12.1	195	16.2	3.6	S 28 03.2	3.6	59.2	S 60	02 48	03 48	04 33	05 20	06 35		
	07	288	38.3		13.0	209	38.8	3.7	27 59.6	3.8	59.2								
	08	303	38.4		13.9	224	01.5	3.7	27 55.8	4.0	59.2	Lat.	Sun-set	Twilight		Moonset			
	09	318	38.6		14.8	238	24.2	3.7	27 51.8	4.2	59.2			Civil	Naut.	16	17	18	19
	10	333	38.7		15.7	252	46.9	3.8	27 47.6	4.4	59.2	°	h m	h m	h m	h m	h m	h m	h m
	11	348	38.8		16.6	267	09.7	3.9	27 43.2	4.6	59.2	N 72	15 56	17 08	18 25	■	■	■	■
W E D N E S D A Y	12	3 38.9 S	9	17.6	281	32.6	3.9	S 27 38.6	4.8	59.2	N 70	16 09	17 12	18 23	■	■	■	20 42	
	13	18	39.1		18.5	295	55.5	4.0	27 33.8	4.9	59.2	68	16 19	17 17	18 21	■	■	■	21 38
	14	33	39.2		19.4	310	18.5	4.0	27 28.9	5.2	59.2	66	16 27	17 20	18 19	■	■	■	22 11
	15	48	39.3		20.3	324	41.5	4.1	27 23.7	5.3	59.2	64	16 35	17 23	18 18	■	■	■	22 35
	16	63	39.4		21.2	339	04.6	4.1	27 18.4	5.5	59.2	62	16 41	17 26	18 17	■	18 28	20 50	22 54
	17	78	39.6		22.1	353	27.7	4.2	27 12.9	5.7	59.2	60	16 46	17 29	18 17	17 43	19 21	21 17	23 09
T H U R S D A Y	18	93	39.7 S	9	23.0	7	50.9	4.3	S 27 07.2	5.9	59.2	N 58	16 51	17 31	18 16	18 26	19 53	21 37	23 22
	19	108	39.8		24.0	22	14.2	4.4	27 01.3	6.0	59.2	56	16 55	17 33	18 16	18 55	20 17	21 54	23 34
	20	123	39.9		24.9	36	37.6	4.4	26 55.3	6.3	59.2	54	16 59	17 35	18 16	19 17	20 37	22 09	23 43
	21	138	40.1		25.8	51	01.0	4.5	26 49.0	6.4	59.3	52	17 02	17 37	18 15	19 35	20 53	22 21	23 52
	22	153	40.2		26.7	65	24.5	4.5	26 42.6	6.6	59.3	50	17 05	17 38	18 15	19 51	21 07	22 32	24 00
	23	168	40.3		27.6	79	48.0	4.7	26 36.0	6.8	59.3	45	17 12	17 42	18 16	20 22	21 35	22 55	24 16
F R I D A Y	00	183	40.4 S	9	28.5	94	11.7	4.7	S 26 29.2	6.9	59.3	N 40	17 18	17 45	18 17	20 47	21 57	23 13	24 29
	01	198	40.6		29.4	108	35.4	4.8	26 22.3	7.1	59.3	35	17 23	17 49	18 18	21 07	22 16	23 28	24 41
	02	213	40.7		30.3	122	59.2	4.8	26 15.2	7.3	59.3	30	17 27	17 52	18 19	21 24	22 31	23 41	24 50
	03	228	40.8		31.3	137	23.0	5.0	26 07.9	7.5	59.3	20	17 35	17 57	18 23	21 52	22 58	24 04	00 04
	04	243	40.9		32.2	151	47.0	5.0	26 00.4	7.6	59.3	N 10	17 42	18 03	18 28	22 17	23 21	24 23	00 23
	05	258	41.0		33.1	166	11.0	5.2	25 52.8	7.8	59.3	0	17 49	18 10	18 34	22 40	23 42	24 41	00 41
S A T U R D A Y	06	273	41.2 S	9	34.0	180	35.2	5.2	S 25 45.0	7.9	59.3	S 10	17 55	18 17	18 42	23 03	24 03	00 03	00 58
	07	288	41.3		34.9	194	59.4	5.3	25 37.1	8.2	59.3	20	18 03	18 25	18 52	23 27	24 25	00 25	01 17
	08	303	41.4		35.8	209	23.7	5.3	25 28.9	8.3	59.3	30	18 11	18 36	19 05	23 56	24 51	00 51	01 38
	09	318	41.5		36.7	223	48.0	5.5	25 20.6	8.4	59.3	35	18 16	18 42	19 13	24 12	00 12	01 06	01 51
	10	333	41.7		37.6	238	12.5	5.6	25 12.2	8.6	59.3	40	18 22	18 50	19 23	24 32	00 32	01 24	02 05
	11	348	41.8		38.5	252	37.1	5.6	25 03.6	8.8	59.3	45	18 28	18 59	19 36	24 55	00 55	01 45	02 22
S U N D A Y	12	3 41.9 S	9	39.4	267	01.7	5.7	S 24 54.8	9.0	59.3	S 50	18 36	19 10	19 52	00 23	01 26	02 11	02 43	
	13	18	42.0		40.4	281	26.4	5.9	24 45.8	9.0	59.3	52	18 40	19 16	20 00	00 39	01 41	02 24	02 53
	14	33	42.1		41.3	295	51.3	5.9	24 36.8	9.3	59.3	54	18 44	19 22	20 09	00 57	01 58	02 38	03 04
	15	48	42.2		42.2	310	16.2	6.0	24 27.5	9.4	59.2	56	18 48	19 28	20 19	01 18	0		

	ARIES	VENUS -3.4		MARS +0.3		JUPITER -1.2		SATURN +0.1		STARS		
G.M.T.	G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "		° ' "	° ' "
19 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23	27 17.5	205 05.3 N	0 42.9	97 15.8 S	24 27.5	189 54.8 S	6 11.7	352 25.8 N	11 02.3	Acamar	315 42.7	S 40 25.2
	42 20.0	220 04.9	41.7	112 16.4	27.2	204 56.7	11.9	7 28.4	02.2	Achernar	335 50.3	S 57 23.3
	57 22.5	235 04.5	40.5	127 17.0	26.9	219 58.7	12.1	22 31.1	02.2	Acruz	173 47.3	S 62 55.8
	72 24.9	250 04.1	39.3	142 17.6	26.6	235 00.6	12.3	37 33.7	02.1	Adhara	255 38.3	S 28 55.4
	87 27.4	265 03.7	38.1	157 18.2	26.3	250 02.6	12.5	52 36.4	02.0	Aldebaran	291 27.0	N 16 27.2
	102 29.8	280 03.3	36.8	172 18.8	26.0	265 04.6	12.7	67 39.1	02.0			
	117 32.3	295 02.9 N	0 35.6	187 19.4 S	24 25.8	280 06.5 S	6 12.9	82 41.7 N	11 01.9	Alioth	166 49.7	N 56 07.4
	132 34.8	310 02.6	34.4	202 20.0	25.5	295 08.5	13.1	97 44.4	01.8	Alkaid	153 25.0	N 49 27.8
	147 37.2	325 02.2	33.2	217 20.6	25.2	310 10.4	13.3	112 47.0	01.8	Al Na'ir	28 24.5	S 47 06.6
	162 39.7	340 01.8	32.0	232 21.2	24.9	325 12.4	13.5	127 49.7	01.7	Alnilam	276 19.6	S 1 12.9
	177 42.2	355 01.4	30.8	247 21.8	24.6	340 14.4	13.7	142 52.3	01.6	Alphard	218 28.6	S 8 31.4
	192 44.6	10 01.0	29.6	262 22.4	24.3	355 16.3	13.9	157 55.0	01.6			
	207 47.1	25 00.6 N	0 28.4	277 23.0 S	24 24.0	10 18.3 S	6 14.1	172 57.6 N	11 01.5	Alphecca	126 39.1	N 26 49.0
	222 49.6	40 00.2	27.2	292 23.6	23.8	25 20.2	14.3	188 00.3	01.4	Alpheratz	358 17.4	N 28 55.6
	237 52.0	54 59.9	26.0	307 24.2	23.5	40 22.2	14.5	203 02.9	01.4	Altair	62 40.4	N 8 47.3
	252 54.5	69 59.5	24.8	322 24.8	23.2	55 24.2	14.7	218 05.6	01.3	Ankaa	353 47.5	S 42 28.1
	267 57.0	84 59.1	23.6	337 25.4	22.9	70 26.1	15.0	233 08.2	01.2	Antares	113 07.0	S 26 22.1
	282 59.4	99 58.7	22.4	352 26.0	22.6	85 28.1	15.2	248 10.9	01.2			
	298 01.9	114 58.3 N	0 21.1	7 26.6 S	24 22.3	100 30.1 S	6 15.4	263 13.5 N	11 01.1	Arcturus	146 26.0	N 19 20.4
	313 04.3	129 57.9	19.9	22 27.1	22.0	115 32.0	15.6	278 16.2	01.0	Atria	108 38.9	S 68 58.8
	328 06.8	144 57.5	18.7	37 27.7	21.7	130 34.0	15.8	293 18.8	01.0	Avior	234 31.8	S 59 24.2
	343 09.3	159 57.2	17.5	52 28.3	21.4	145 35.9	16.0	308 21.5	00.9	Bellatrix	279 07.1	N 6 19.7
	358 11.7	174 56.8	16.3	67 28.9	21.1	160 37.9	16.2	323 24.1	00.8	Betelgeuse	271 36.8	N 7 24.4
13 14.2	189 56.4	15.1	82 29.5	20.9	175 39.9	16.4	338 26.8	00.8				
20 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23	28 16.7	204 56.0 N	0 13.9	97 30.1 S	24 20.6	190 41.8 S	6 16.6	353 29.4 N	11 00.7	Canopus	264 10.6	S 52 40.2
	43 19.1	219 55.6	12.7	112 30.7	20.3	205 43.8	16.8	8 32.1	00.6	Capella	281 22.8	N 45 58.2
	58 21.6	234 55.2	11.5	127 31.3	20.0	220 45.7	17.0	23 34.8	00.6	Deneb	49 54.0	N 45 10.5
	73 24.1	249 54.8	10.3	142 31.9	19.7	235 47.7	17.2	38 37.4	00.5	Denebola	183 07.4	N 14 44.5
	88 26.5	264 54.4	09.1	157 32.5	19.4	250 49.7	17.4	53 40.1	00.5	Diphda	349 28.5	S 18 09.0
	103 29.0	279 54.1	07.8	172 33.1	19.1	265 51.6	17.6	68 42.7	00.4			
	118 31.5	294 53.7 N	0 06.6	187 33.7 S	24 18.8	280 53.6 S	6 17.8	83 45.4 N	11 00.3	Dubhe	194 32.0	N 61 54.8
	133 33.9	309 53.3	05.4	202 34.3	18.5	295 55.6	18.0	98 48.0	00.3	Elath	278 54.0	N 28 35.1
	148 36.4	324 52.9	04.2	217 34.9	18.2	310 57.5	18.2	113 50.7	00.2	Eltanin	91 01.7	N 51 29.7
	163 38.8	339 52.5	03.0	232 35.5	17.9	325 59.5	18.4	128 53.3	00.1	Enif	34 19.3	N 9 44.2
	178 41.3	354 52.1	01.8	247 36.0	17.6	341 01.4	18.6	143 56.0	00.1	Fomalhaut	15 59.8	S 29 47.0
	193 43.8	9 51.7 N	0 00.6	262 36.6	17.3	356 03.4	18.8	158 58.6	11 00.0			
	208 46.2	24 51.4 S	0 00.6	277 37.2 S	24 17.0	11 05.4 S	6 19.0	174 01.3 N	10 59.9	Gacrux	172 38.6	S 56 56.5
	223 48.7	39 51.0	01.8	292 37.8	16.7	26 07.3	19.2	189 03.9	59.9	Gienah	176 26.6	S 17 22.3
	238 51.2	54 50.6	03.0	307 38.4	16.4	41 09.3	19.4	204 06.6	59.8	Hadar	149 35.7	S 60 13.7
	253 53.6	69 50.2	04.3	322 39.0	16.1	56 11.2	19.6	219 09.2	59.7	Hamal	328 37.7	N 23 19.4
	268 56.1	84 49.8	05.5	337 39.6	15.8	71 13.2	19.8	234 11.9	59.7	Kaus Aust.	84 27.6	S 34 24.2
	283 58.6	99 49.4	06.7	352 40.2	15.5	86 15.2	20.1	249 14.6	59.6			
	299 01.0	114 49.0 S	0 07.9	7 40.8 S	24 15.2	101 17.1 S	6 20.3	264 17.2 N	10 59.5	Kochab	137 19.1	N 74 16.7
	314 03.5	129 48.6	09.1	22 41.4	14.9	116 19.1	20.5	279 19.9	59.5	Markab	14 11.0	N 15 02.7
	329 05.9	144 48.3	10.3	37 42.0	14.6	131 21.1	20.7	294 22.5	59.4	Menkar	314 49.2	N 3 58.6
	344 08.4	159 47.9	11.5	52 42.6	14.3	146 23.0	20.9	309 25.2	59.3	Menkent	148 47.0	S 36 13.3
	359 10.9	174 47.5	12.7	67 43.1	14.0	161 25.0	21.1	324 27.8	59.3	Miaplacidus	221 47.4	S 69 35.1
14 13.3	189 47.1	13.9	82 43.7	13.7	176 26.9	21.3	339 30.5	59.2				
21 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23	29 15.8	204 46.7 S	0 15.2	97 44.3 S	24 13.4	191 28.9 S	6 21.5	354 33.1 N	10 59.1	Mirfak	309 27.3	N 49 45.4
	44 18.3	219 46.3	16.4	112 44.9	13.1	206 30.9	21.7	9 35.8	59.1	Nunki	76 39.2	S 26 20.3
	59 20.7	234 45.9	17.6	127 45.5	12.8	221 32.8	21.9	24 38.4	59.0	Peacock	54 10.7	S 56 50.3
	74 23.2	249 45.5	18.8	142 46.1	12.5	236 34.8	22.1	39 41.1	59.0	Pollux	244 07.9	N 28 06.1
	89 25.7	264 45.2	20.0	157 46.7	12.2	251 36.8	22.3	54 43.7	58.9	Procyon	245 34.1	N 5 18.4
	104 28.1	279 44.8	21.2	172 47.3	11.9	266 38.7	22.5	69 46.4	58.8			
	119 30.6	294 44.4 S	0 22.4	187 47.9 S	24 11.6	281 40.7 S	6 22.7	84 49.1 N	10 58.8	Rasalhague	96 37.2	N 12 34.9
	134 33.0	309 44.0	23.6	202 48.5	11.3	296 42.6	22.9	99 51.7	58.7	Regulus	208 18.6	N 12 07.1
	149 35.5	324 43.6	24.8	217 49.1	11.0	311 44.6	23.1	114 54.4	58.6	Rigel	281 43.5	S 8 13.8
	164 38.0	339 43.2	26.1	232 49.7	10.7	326 46.6	23.3	129 57.0	58.6	Rigel Kent.	140 37.6	S 60 42.7
	179 40.4	354 42.8	27.3	247 50.2	10.4	341 48.5	23.5	144 59.7	58.5	Sabik	102 50.5	S 15 41.4
	194 42.9	9 42.4	28.5	262 50.8	10.1	356 50.5	23.7	160 02.3	58.4			
	209 45.4	24 42.1 S	0 29.7	277 51.4 S	24 09.8	11 52.4 S	6 23.9	175 05.0 N	10 58.4	Schedar	350 17.9	N 56 22.5
	224 47.8	39 41.7	30.9	292 52.0	09.5	26 54.4	24.1	190 07.6	58.3	Shaula	97 06.9	S 37 05.2
	239 50.3	54 41.3	32.1	307 52.6	09.2	41 56.4	24.3	205 10.3	58.2	Sirius	259 02.7	S 16 40.1
	254 52.8	69 40.9	33.3	322 53.2	08.9	56 58.3	24.5	220 12.9	58.2	Spica	159 06.3	N 11 00.2
	269 55.2	84 40.5	34.5	337 53.8	08.6	72 00.3	24.7	235 15.6	58.1	Suhail	223 17.0	S 43 18.2
	284 57.7	99 40.1	35.7	352 54.4	08.3	87 02.3	24.9	250 18.2	58.0			
	300 00.2	114 39.7 S	0 37.0	7 55.0 S	24 08.0	102 04.2 S	6 25.1	265 20.9 N	10 58.0	Vega	81 01.4	N 38 45.4
	315 02.6	129 39.3	38.2	22 55.6	07.6	117 06.2	25.3	280 23.6	57.9	Zuben'ubi	137 42.3	S 15 55.0
	330 05.1	144 38.9	39.4	37 56.1	07.3	132 08.1	25.5	295 26.2	57.8			
	345 07.5	159 38.6	40.6	52 56.7	07.0	147 10.1	25.7	310 28.9	57.8		S.H.A.	Mer. Pass.
	0 10.0	174 38.2	41.8	67 57.3	06.7	162 12.1	26.0	325 31.5	57.7	Venus	176 39.3	10 21
15 12.5	189 37.8	43.0	82 57.9	06.4	177 14.0	26.2	340 34.2	57.6	Mars	69 13.4	17 29	
									Jupiter	162 25.1	11 16	
									Saturn	325 12.7	0 26	
Mer. Pass.	22 03.3	v -0.4	d 1.2	v 0.6	d 0.3	v 2.0	d 0.2	v 2.7	d 0.1			

G.M.T.	SUN		MOON		Lat.	Twilight		Sun-rise	Moonrise			
	G.H.A.	Dec.	G.H.A.	Dec.		Naut.	Civil		19	20	21	22
19 00	183 48.3	9 50.3	50 54.6	8 57.7	N 72	05 16	06 35	07 48	17 31	16 37	15 59	
01	184 48.4	9 51.2	50 54.6	8 57.7	N 70	05 17	06 36	07 49	17 31	16 37	15 59	
02	185 48.5	9 52.1	50 54.6	8 57.7	68	05 18	06 37	07 50	17 31	16 37	15 59	
03	186 48.6	9 53.0	50 54.6	8 57.7	66	05 19	06 38	07 51	17 31	16 37	15 59	
04	187 48.7	9 53.9	50 54.6	8 57.7	64	05 20	06 39	07 52	17 31	16 37	15 59	
05	188 48.8	9 54.8	50 54.6	8 57.7	62	05 21	06 40	07 53	17 31	16 37	15 59	
06	189 48.9	9 55.7	50 54.6	8 57.7	60	05 22	06 41	07 54	17 31	16 37	15 59	
07	190 49.0	9 56.6	50 54.6	8 57.7	N 58	05 23	06 42	07 55	17 31	16 37	15 59	
08	191 49.1	9 57.5	50 54.6	8 57.7	56	05 24	06 43	07 56	17 31	16 37	15 59	
09	192 49.2	9 58.4	50 54.6	8 57.7	54	05 25	06 44	07 57	17 31	16 37	15 59	
10	193 49.3	9 59.3	50 54.6	8 57.7	52	05 26	06 45	07 58	17 31	16 37	15 59	
11	194 49.4	9 60.2	50 54.6	8 57.7	50	05 27	06 46	07 59	17 31	16 37	15 59	
12	195 49.5	9 61.1	50 54.6	8 57.7	48	05 28	06 47	08 00	17 31	16 37	15 59	
13	196 49.6	9 62.0	50 54.6	8 57.7	46	05 29	06 48	08 01	17 31	16 37	15 59	
14	197 49.7	9 62.9	50 54.6	8 57.7	44	05 30	06 49	08 02	17 31	16 37	15 59	
15	198 49.8	9 63.8	50 54.6	8 57.7	42	05 31	06 50	08 03	17 31	16 37	15 59	
16	199 49.9	9 64.7	50 54.6	8 57.7	40	05 32	06 51	08 04	17 31	16 37	15 59	
17	200 50.0	9 65.6	50 54.6	8 57.7	38	05 33	06 52	08 05	17 31	16 37	15 59	
18	201 50.1	9 66.5	50 54.6	8 57.7	36	05 34	06 53	08 06	17 31	16 37	15 59	
19	202 50.2	9 67.4	50 54.6	8 57.7	34	05 35	06 54	08 07	17 31	16 37	15 59	
20	203 50.3	9 68.3	50 54.6	8 57.7	32	05 36	06 55	08 08	17 31	16 37	15 59	
21	204 50.4	9 69.2	50 54.6	8 57.7	30	05 37	06 56	08 09	17 31	16 37	15 59	
22	205 50.5	9 70.1	50 54.6	8 57.7	28	05 38	06 57	08 10	17 31	16 37	15 59	
23	206 50.6	9 71.0	50 54.6	8 57.7	26	05 39	06 58	08 11	17 31	16 37	15 59	
20 00	183 48.3	9 50.3	50 54.6	8 57.7	S 50	03 33	04 15	04 50	11 18	12 45	14 09	15 30
01	184 48.4	9 51.2	50 54.6	8 57.7	52	03 34	04 16	04 51	11 19	12 46	14 10	15 31
02	185 48.5	9 52.1	50 54.6	8 57.7	54	03 35	04 17	04 52	11 20	12 47	14 11	15 32
03	186 48.6	9 53.0	50 54.6	8 57.7	56	03 36	04 18	04 53	11 21	12 48	14 12	15 33
04	187 48.7	9 53.9	50 54.6	8 57.7	58	03 37	04 19	04 54	11 22	12 49	14 13	15 34
05	188 48.8	9 54.8	50 54.6	8 57.7	S 60	03 38	04 20	04 55	11 23	12 50	14 14	15 35
06	189 48.9	9 55.7	50 54.6	8 57.7	Lat.	Sun-set	Twilight	Moonset				
07	190 49.0	9 56.6	50 54.6	8 57.7			Civil	Naut.	19	20	21	22
08	191 49.1	9 57.5	50 54.6	8 57.7					h m	h m	h m	h m
09	192 49.2	9 58.4	50 54.6	8 57.7	N 72	15 40	16 53	18 12	23 27	26 03	02 03	
10	193 49.3	9 59.3	50 54.6	8 57.7	N 70	15 55	17 08	18 26	20 42	23 52	26 11	02 11
11	194 49.4	9 60.2	50 54.6	8 57.7	68	16 06	17 19	18 39	21 38	24 50	06 10	02 18
12	195 49.5	9 61.1	50 54.6	8 57.7	66	16 16	17 29	18 49	22 11	24 25	06 25	02 24
13	196 49.6	9 62.0	50 54.6	8 57.7	64	16 24	17 34	18 59	22 35	24 37	06 37	02 28
14	197 49.7	9 62.9	50 54.6	8 57.7	62	16 31	17 37	19 09	22 54	24 47	06 47	02 32
15	198 49.8	9 63.8	50 54.6	8 57.7	60	16 38	17 40	19 19	23 09	24 55	06 55	02 36
16	199 49.9	9 64.7	50 54.6	8 57.7	N 58	16 43	17 43	19 29	23 22	25 03	01 03	02 39
17	200 50.0	9 65.6	50 54.6	8 57.7	56	16 48	17 46	19 39	23 34	25 09	01 09	02 41
18	201 50.1	9 66.5	50 54.6	8 57.7	54	16 52	17 49	19 49	23 43	25 15	01 15	02 44
19	202 50.2	9 67.4	50 54.6	8 57.7	52	16 56	17 52	19 59	23 52	25 21	01 21	02 46
20	203 50.3	9 68.3	50 54.6	8 57.7	50	16 59	17 55	20 09	24 00	00 00	01 25	02 48
21	204 50.4	9 69.2	50 54.6	8 57.7	48	17 02	17 58	20 19	24 09	00 09	01 35	02 52
22	205 50.5	9 70.1	50 54.6	8 57.7	46	17 07	18 01	20 29	24 16	00 16	01 41	02 56
23	206 50.6	9 71.0	50 54.6	8 57.7	N 40	17 14	18 04	20 39	24 29	00 29	01 44	02 56
20 01	184 48.4	9 51.2	50 54.6	8 57.7	38	17 19	18 07	20 49	24 41	00 41	01 51	02 59
02	185 48.5	9 52.1	50 54.6	8 57.7	36	17 24	18 10	20 59	24 50	00 50	01 57	03 02
03	186 48.6	9 53.0	50 54.6	8 57.7	34	17 33	18 13	21 09	25 04	01 04	02 08	03 06
04	187 48.7	9 53.9	50 54.6	8 57.7	N 10	17 41	18 16	21 19	25 17	01 17	02 17	03 10
05	188 48.8	9 54.8	50 54.6	8 57.7	0	17 48	18 19	21 29	25 29	01 29	02 29	03 14
06	189 48.9	9 55.7	50 54.6	8 57.7	S 10	17 56	18 27	21 39	25 41	01 41	02 41	03 17
07	190 49.0	9 56.6	50 54.6	8 57.7	20	18 04	18 36	21 49	25 53	01 53	02 53	03 21
08	191 49.1	9 57.5	50 54.6	8 57.7	30	18 13	18 47	21 59	26 05	02 05	03 05	03 24
09	192 49.2	9 58.4	50 54.6	8 57.7	35	18 19	18 53	22 09	26 17	02 17	03 17	03 28
10	193 49.3	9 59.3	50 54.6	8 57.7	40	18 25	19 00	22 19	26 29	02 29	03 29	03 31
11	194 49.4	9 60.2	50 54.6	8 57.7	45	18 32	19 03	22 29	26 41	02 41	03 41	03 34
12	195 49.5	9 61.1	50 54.6	8 57.7	S 50	18 41	19 16	22 39	26 53	02 53	03 53	03 38
13	196 49.6	9 62.0	50 54.6	8 57.7	52	18 45	19 22	22 49	27 05	03 05	04 05	03 41
14	197 49.7	9 62.9	50 54.6	8 57.7	54	18 50	19 27	22 59	27 17	03 17	04 17	03 44
15	198 49.8	9 63.8	50 54.6	8 57.7	56	18 55	19 32	23 09	27 29	03 29	04 29	03 47
16	199 49.9	9 64.7	50 54.6	8 57.7	58	19 00	19 37	23 19	27 41	03 41	04 41	03 50
17	200 50.0	9 65.6	50 54.6	8 57.7	S 60	19 07	19 44	23 29	27 53	03 53	04 53	03 53
18	201 50.1	9 66.5	50 54.6	8 57.7	Day	SUN		MOON				
19	202 50.2	9 67.4	50 54.6	8 57.7		Eqn. of Time	Mer. Pass.	Mer. Pass.	Upper	Lower	Age	Phase
20	203 50.3	9 68.3	50 54.6	8 57.7		00 ^h	12 ^h					
21	204 50.4	9 69.2	50 54.6	8 57.7	19	m s	m s	h m	h m	h m	d	
22	205 50.5	9 70.1	50 54.6	8 57.7	20	14 53	14 59	11 45	19 23	06 55	08	
23	206 50.6	9 71.0	50 54.6	8 57.7	21	15 04	15 09	11 45	20 14	07 49	09	
	S.D. 16.1	d 0.9	S.D. 16.1	16.1	16.0				21 03	08 39	10	

G.M.T.		ARIES		VENUS -3.4		MARS +0.3		JUPITER -1.2		SATURN +0.1		STARS			
d h		G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
WEDNESDAY	22 00	30 14.4	204 37.4	S 0 44.2	97 58.5	S 24 06.1	192 16.0	S 6 26.4	355 36.8	N 10 57.6			Acamar	315 42.7	S 40 25.2
	01	45 17.9	219 37.0	45.4	112 59.1	05.8	207 17.9	26.6	10 39.5	57.5			Alchernar	335 50.3	S 57 23.3
	02	60 19.9	234 36.6	46.7	127 59.7	05.5	222 19.9	26.8	25 42.1	57.4			Acrux	173 47.2	S 62 55.8
	03	75 22.3	249 36.2	47.9	143 00.3	05.2	237 21.9	27.0	40 44.8	57.4			Adhara	255 38.3	S 28 55.4
	04	90 24.8	264 35.8	49.1	158 00.9	04.9	252 23.8	27.2	55 47.4	57.3			Aldebaran	291 27.0	N 16 27.2
	05	105 27.3	279 35.4	50.3	173 01.5	04.5	267 25.8	27.4	70 50.1	57.2					
	06	120 29.7	294 35.0	S 0 51.5	188 02.0	S 24 04.2	282 27.8	S 6 27.6	85 52.8	N 10 57.2			Alioth	166 49.7	N 56 07.3
	07	135 32.2	309 34.7	52.7	203 02.6	03.9	297 29.7	27.8	100 55.4	57.1			Alkaid	153 25.0	N 49 27.8
	08	150 34.7	324 34.3	53.9	218 03.2	03.6	312 31.7	28.0	115 58.1	57.0			Al Na'ir	28 24.5	S 47 06.1
	09	165 37.1	339 33.9	55.1	233 03.8	03.3	327 33.6	28.2	131 00.7	57.0			Alnilam	276 19.6	S 1 12.1
	10	180 39.6	354 33.5	56.4	248 04.4	03.0	342 35.6	28.4	146 03.4	56.9			Alphard	218 28.6	S 8 31.4
	11	195 42.0	9 33.1	57.6	263 05.0	02.7	357 37.6	28.6	161 06.0	56.8					
	12	210 44.5	24 32.7	S 0 58.8	278 05.6	S 24 02.3	12 39.5	S 6 28.8	176 08.7	N 10 56.8			Alphecca	126 39.2	N 26 49.0
	13	225 47.0	39 32.3	1 00.0	293 06.2	02.0	27 41.5	29.0	191 11.3	56.7			Alpheratz	358 17.4	N 28 55.6
	14	240 49.4	54 31.9	01.2	308 06.8	01.7	42 43.5	29.2	206 14.0	56.6			Altair	62 40.4	N 8 47.3
	15	255 51.9	69 31.5	02.4	323 07.4	01.4	57 45.4	29.4	221 16.7	56.6			Ankaa	353 47.5	S 42 28.2
	16	270 54.4	84 31.2	03.6	338 07.9	01.1	72 47.4	29.6	236 19.3	56.5			Antares	113 07.0	S 26 22.1
	17	285 56.8	99 30.8	04.8	353 08.5	00.8	87 49.3	29.8	251 22.0	56.4					
	18	300 59.3	114 30.4	S 1 06.1	8 09.1	S 24 00.4	102 51.3	S 6 30.0	266 24.6	N 10 56.4			Arcturus	146 26.0	N 19 20.4
	19	316 01.8	129 30.0	07.3	23 09.7	24 00.1	117 53.3	30.2	281 27.3	56.3			Atria	108 39.0	S 68 58.8
	20	331 04.2	144 29.6	08.5	38 10.3	23 59.8	132 55.2	30.4	296 29.9	56.2			Avior	234 31.7	S 59 24.2
	21	346 06.7	159 29.2	09.7	53 10.9	59.5	147 57.2	30.6	311 32.6	56.2			Bellatrix	279 07.1	N 6 19.7
	22	1 09.2	174 28.8	10.9	68 11.5	59.2	162 59.2	30.8	326 35.2	56.1			Betelgeuse	271 36.7	N 7 24.4
23	16 11.6	189 28.4	12.1	83 12.1	58.9	178 01.1	31.0	341 37.9	56.1						
THURSDAY	23 00	31 14.1	204 28.0	S 1 13.3	98 12.7	S 23 58.5	193 03.1	S 6 31.2	356 40.5	N 10 56.0			Canopus	264 10.6	S 52 40.3
	01	46 16.5	219 27.6	14.6	113 13.2	58.2	208 05.0	31.4	11 43.2	55.9			Capella	281 22.8	N 45 58.2
	02	61 19.0	234 27.3	15.8	128 13.8	57.9	223 07.0	31.6	26 45.9	55.9			Deneb	49 54.0	N 45 10.5
	03	76 21.5	249 26.9	17.0	143 14.4	57.6	238 09.0	31.8	41 48.5	55.8			Denebola	183 07.4	N 14 44.5
	04	91 23.9	264 26.5	18.2	158 15.0	57.3	253 10.9	32.0	56 51.2	55.7			Diphda	349 28.5	S 18 09.0
	05	106 26.4	279 26.1	19.4	173 15.6	56.9	268 12.9	32.2	71 53.8	55.7					
	06	121 28.9	294 25.7	S 1 20.6	188 16.2	S 23 56.6	283 14.9	S 6 32.4	86 56.5	N 10 55.6			Dubhe	194 32.0	N 61 54.7
	07	136 31.3	309 25.3	21.8	203 16.8	56.3	298 16.8	32.6	101 59.1	55.5			Elmath	278 54.0	N 28 35.1
	08	151 33.8	324 24.9	23.0	218 17.4	56.0	313 18.8	32.9	117 01.8	55.5			Eltanin	91 01.7	N 51 29.6
	09	166 36.3	339 24.5	24.3	233 18.0	55.6	328 20.7	33.1	132 04.4	55.4			Enif	34 19.3	N 9 44.3
	10	181 38.7	354 24.1	25.5	248 18.6	55.3	343 22.7	33.3	147 07.1	55.3			Fomalhaut	15 59.8	S 29 47.0
	11	196 41.2	9 23.7	26.7	263 19.1	55.0	358 24.7	33.5	162 09.8	55.3					
	12	211 43.6	24 23.3	S 1 27.9	278 19.7	S 23 54.7	13 26.6	S 6 33.7	177 12.4	N 10 55.2			Gacrux	172 38.5	S 56 56.5
	13	226 46.1	39 22.9	29.1	293 20.3	54.4	28 28.6	33.9	192 15.1	55.1			Gienah	176 26.6	S 17 22.3
	14	241 48.6	54 22.6	30.3	308 20.9	54.0	43 30.5	34.1	207 17.7	55.1			Hadar	149 35.7	S 60 17.3
	15	256 51.0	69 22.2	31.5	323 21.5	53.7	58 32.5	34.3	222 20.4	55.0			Hamal	328 37.7	N 23 19.4
	16	271 53.5	84 21.8	32.8	338 22.1	53.4	73 34.5	34.5	237 23.0	54.9			Kaus Aust.	84 27.6	S 34 24.2
	17	286 56.0	99 21.4	34.0	353 22.7	53.1	88 36.4	34.7	252 25.7	54.9					
	18	301 58.4	114 21.0	S 1 35.2	8 23.3	S 23 52.7	103 38.4	S 6 34.9	267 28.4	N 10 54.8			Kochab	137 19.1	N 74 16.7
	19	317 00.9	129 20.6	36.4	23 23.8	52.4	118 40.4	35.1	282 31.0	54.7			Markab	14 11.0	N 15 02.7
	20	332 03.4	144 20.2	37.6	38 24.4	52.1	133 42.3	35.3	297 33.7	54.7			Menkar	314 49.2	N 3 58.6
	21	347 05.8	159 19.8	38.8	53 25.0	51.7	148 44.3	35.5	312 36.3	54.6			Menkent	148 47.0	S 36 13.3
	22	2 08.3	174 19.4	40.0	68 25.6	51.4	163 46.2	35.7	327 39.0	54.5			Miaplacidus	221 47.4	S 69 35.1
23	17 10.7	189 19.0	41.3	83 26.2	51.1	178 48.2	35.9	342 41.6	54.5						
FRIDAY	24 00	32 13.2	204 18.6	S 1 42.5	98 26.8	S 23 50.8	193 50.2	S 6 36.1	357 44.3	N 10 54.4			Mirfak	309 27.3	N 49 45.1
	01	47 15.7	219 18.2	43.7	113 27.4	50.4	208 52.1	36.3	12 46.9	54.3			Nunki	76 39.2	S 26 20.3
	02	62 18.1	234 17.8	44.9	128 28.0	50.1	223 54.1	36.5	27 49.6	54.3			Peacock	54 10.8	S 56 50.3
	03	77 20.6	249 17.5	46.1	143 28.6	49.8	238 56.1	36.7	42 52.3	54.2			Pollux	244 07.9	N 28 06.1
	04	92 23.1	264 17.1	47.3	158 29.1	49.4	253 58.0	36.9	57 54.9	54.2			Procyon	245 34.1	N 5 18.4
	05	107 25.5	279 16.7	48.5	173 29.7	49.1	269 00.0	37.1	72 57.6	54.1					
	06	122 28.0	294 16.3	S 1 49.7	188 30.3	S 23 48.8	284 01.9	S 6 37.3	88 00.2	N 10 54.0			Rasalhague	96 37.2	N 12 34.9
	07	137 30.5	309 15.9	51.0	203 30.9	48.5	299 03.9	37.5	103 02.9	54.0			Regulus	208 18.6	N 12 07.0
	08	152 32.9	324 15.5	52.2	218 31.5	48.1	314 05.9	37.7	118 05.5	53.9			Rigel	281 43.5	S 8 13.8
	09	167 35.4	339 15.1	53.4	233 32.1	47.8	329 07.8	37.9	133 08.2	53.8			Rigel Kent.	140 37.6	S 60 42.7
	10	182 37.9	354 14.7	54.6	248 32.7	47.5	344 09.8	38.1	148 10.9	53.8			Sabik	102 50.5	S 15 41.4
	11	197 40.3	9 14.3	55.8	263 33.3	47.1	359 11.8	38.3	163 13.5	53.7					
	12	212 42.8	24 13.9	S 1 57.0	278 33.8	S 23 46.8	14 13.7	S 6 38.5	178 16.2	N 10 53.6			Schedar	350 17.9	N 56 22.5
	13	227 45.2	39 13.5	58.2	293 34.4	46.5	29 15.7	38.7	193 18.8	53.6			Shaula	97 06.9	S 37 05.2
	14	242 47.7	54 13.1	1 59.5	308 35.0	46.1	44 17.7	38.9	208 21.5	53.5			Sirius	259 02.6	S 16 40.1
	15	257 50.2	69 12.7	2 00.7	323 35.6	45.8	59 19.6	39.1	223 24.1	53.4			Spica	159 06.3	S 11 00.2
	16	272 52.6	84 12.3	01.9	338 36.2	45.5	74 21.6	39.3	238 26.8	53.4			Suhail	223 16.9	S 43 18.2
	17	287 55.1	99 11.9	03.1	353 36.8	45.1	89 23.5	39.5	253 29.4	53.3					
	18	302 57.6	114 11.5	S 2 04.3	8 37.4	S 23 44.8	104 25.5	S 6 39.7	268 32.1	N 10 53.2			Vega	81 01.4	N 38 45.4
	19	318 00.0	129 11.1	05.5	23 38.0	44.4	119 27.5	39.9	283 34.8	53.2			Zuben'ubi	137 42.3	S 15 55.0
	20	333 02.5	144 10.7	06.7	38 38.5	44.1	134 29.4	40.1	298 37.4	53.1					
	21	348 05.0	159 10.4	08.0	53 39.1	43.8	149 31.4	40.3	313 40.1	53.0					
	22	3 07.4	174 10.0	09.2	68 39.7	43.4	164 33.4	40.5	328 42.7	53.0			Venus	173 13.9	10 22
23	18 09.9	189 09.6	10.4	83 40.3	43.1	179 35.3	40.7	343 45.4	52.9			Mars	66 58.6	17 26	
Mer. Pass. 21 51.5		v -0.4		d 1.2	v 0.6		d 0.3	v 2.0		d 0.2	v 2.7		d 0.1	Mer. Pass. h m	

G.M.T.	SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise					
	G.H.A.	Dec.	G.H.A.	v	Dec.	d	H.P.		Naut.	Civil		22	23	24	25		
d h	° ' "	° ' "	° ' "	' "	° ' "	' "	' "	° ' "	h m	h m	h m	h m	h m	h m	h m	h m	
22	00	183 51-0	S 10 54-9	42 56-7	12-5	S	5 54-2 16-3	58-7	N 72	05 29	06 48	08 04	15 59	15 23	14 41	13 34	
	01	198 51-1	55-7	57 28-2	12-6		5 37-9 16-4	58-7	N 70	05 29	06 40	07 47	15 57	15 29	14 58	14 14	
	02	213 51-2	56-6	71 59-8	12-7		5 21-5 16-5	58-6	68	05 28	06 33	07 33	15 55	15 34	15 12	14 42	
	03	228 51-3	57-5	86 31-5	12-6		5 05-0 16-4	58-6	66	05 28	06 28	07 23	15 53	15 39	15 23	15 04	
	04	243 51-4	58-4	101 03-1	12-8		4 48-6 16-4	58-6	64	05 28	06 23	07 13	15 52	15 42	15 32	15 21	
	05	258 51-5	10 59-3	115 34-9	12-7		4 32-2 16-5	58-6	62	05 27	06 19	07 06	15 51	15 46	15 41	15 35	
	06	273 51-6	S 11 00-2	130 06-6	12-8	S	4 15-7 16-5	58-6	60	05 27	06 15	06 59	15 50	15 49	15 48	15 48	
	07	288 51-7	01-1	144 38-4	12-8		3 59-2 16-5	58-6	N 58	05 26	06 12	06 53	15 49	15 51	15 54	15 58	
	08	303 51-8	01-9	159 10-2	12-9		3 42-7 16-5	58-6	56	05 26	06 09	06 47	15 48	15 54	16 00	16 07	
	09	318 51-9	02-8	173 42-1	12-8		3 26-2 16-5	58-5	54	05 25	06 06	06 43	15 47	15 56	16 05	16 16	
WEDNESDAY	10	333 52-0	03-7	188 13-9	12-9		3 09-7 16-5	58-5	52	05 24	06 04	06 38	15 47	15 58	16 09	16 23	
	11	348 52-1	04-6	202 45-8	13-0		2 53-2 16-5	58-5	50	05 24	06 01	06 34	15 46	15 59	16 13	16 30	
	12	3 52-2	S 11 05-5	217 17-8	12-9	S	2 36-7 16-5	58-5	45	05 22	05 56	06 26	15 45	16 03	16 23	16 44	
	13	18 52-2	06-4	231 49-7	13-0		2 20-2 16-6	58-5	N 40	05 20	05 51	06 19	15 44	16 07	16 30	16 56	
	14	33 52-3	07-2	246 21-7	13-1		2 03-6 16-5	58-5	35	05 17	05 47	06 13	15 43	16 09	16 37	17 06	
	15	48 52-4	08-1	260 53-8	13-0		1 47-1 16-5	58-5	30	05 15	05 43	06 07	15 42	16 12	16 43	17 15	
	16	63 52-5	09-0	275 25-8	13-1		1 30-6 16-5	58-4	20	05 09	05 35	05 58	15 41	16 16	16 53	17 31	
	17	78 52-6	09-9	289 57-9	13-0		1 14-1 16-6	58-4	N 10	05 03	05 28	05 49	15 39	16 20	17 02	17 45	
	18	93 52-7	S 11 10-8	304 29-9	13-1	S	0 57-5 16-5	58-4	0	04 56	05 20	05 41	15 38	16 24	17 10	17 58	
	19	108 52-8	11-6	319 02-0	13-2		0 41-0 16-5	58-4	S 10	04 46	05-11	05 33	15 37	16 28	17 19	18 11	
THURSDAY	20	123 52-9	12-5	333 34-2	13-1		0 24-5 16-5	58-4	20	04 35	05 01	05 24	15 36	16 32	17 28	18 25	
	21	138 53-0	13-4	348 06-3	13-1	S	0 08-0 16-5	58-4	30	04 20	04 49	05 14	15 34	16 37	17 39	18 41	
	22	153 53-1	14-3	2 38-4	13-2	N	0 08-5 16-5	58-3	35	04 10	04 42	05 08	15 34	16 39	17 45	18 51	
	23	168 53-2	15-2	17 10-6	13-2		0 25-0 16-5	58-3	40	03 59	04 33	05 01	15 33	16 42	17 52	19 01	
	24	183 53-3	S 11 16-0	31 42-8	13-2	N	0 41-5 16-5	58-3	45	03 44	04 22	04 53	15 32	16 46	18 00	19 14	
	01	198 53-4	16-9	46 15-0	13-2		0 58-0 16-4	58-3	S 50	03 26	04 09	04 44	15 30	16 50	18 10	19 30	
	02	213 53-4	17-8	60 47-2	13-2		1 14-4 16-5	58-3	52	03 17	04 03	04 39	15 30	16 52	18 15	19 38	
	03	228 53-5	18-7	75 19-4	13-2		1 30-9 16-4	58-3	54	03 07	03 56	04 34	15 29	16 55	18 20	19 46	
	04	243 53-6	19-6	89 51-6	13-2		1 47-3 16-4	58-2	56	02 55	03 48	04 29	15 29	16 57	18 26	19 55	
	05	258 53-7	20-4	104 23-8	13-3		2 03-7 16-4	58-2	58	02 40	03 39	04 23	15 28	17 00	18 32	20 06	
FRIDAY	06	273 53-8	S 11 21-3	118 56-1	13-2	N	2 20-1 16-4	58-2	S 60	02 23	03 28	04 16	15 27	17 03	18 40	20 18	
	07	288 53-9	22-2	133 28-3	13-3		2 36-5 16-3	58-2	Lat.	Sun-set	Twilight		Moonset				
	08	303 54-0	23-1	148 00-6	13-2		2 52-8 16-3	58-2			Civil	Naut.	22	23	24	25	
	09	318 54-1	23-9	162 32-8	13-3		3 09-1 16-3	58-1		h m	h m	h m	h m	h m	h m	h m	h m
	10	333 54-1	24-8	177 05-1	13-2		3 25-4 16-3	58-1	N 72	15 23	16 39	17 58	02 03	04 23	06 44	09 31	
	11	348 54-2	25-7	191 37-3	13-3		3 41-7 16-3	58-1	N 70	15 40	16 47	17 58	02 11	04 20	06 29	08 52	
	12	3 54-3	S 11 26-6	206 09-6	13-2	N	3 58-0 16-2	58-1	68	15 54	16 54	17 59	02 18	04 18	06 18	08 26	
	13	18 54-4	27-5	220 41-8	13-3		4 14-2 16-2	58-1	66	16 05	17 00	17 59	02 24	04 16	06 09	08 06	
	14	33 54-5	28-3	235 14-1	13-2		4 30-4 16-1	58-1	64	16 14	17 04	18 00	02 28	04 15	06 01	07 50	
	15	48 54-6	29-2	249 46-3	13-2		4 46-5 16-2	58-0	62	16 22	17 09	18 00	02 32	04 14	05 54	07 37	
SATURDAY	16	63 54-7	30-1	264 18-5	13-3		5 02-7 16-1	58-0	60	16 29	17 12	18 01	02 36	04 13	05 49	07 26	
	17	78 54-8	30-9	278 50-8	13-2		5 18-8 16-0	58-0	N 58	16 35	17 16	18 01	02 39	04 12	05 44	07 16	
	18	93 54-8	S 11 31-8	293 23-0	13-2	N	5 34-8 16-0	58-0	56	16 41	17 19	18 02	02 41	04 11	05 39	07 08	
	19	108 54-9	32-7	307 55-2	13-2		5 50-8 16-0	58-0	54	16 45	17 22	18 03	02 44	04 10	05 35	07 01	
	20	123 55-0	33-6	322 27-4	13-2		6 06-8 16-0	57-9	52	16 50	17 24	18 04	02 46	04 09	05 32	06 54	
	21	138 55-1	34-4	336 59-6	13-2		6 22-8 15-9	57-9	50	16 54	17 27	18 04	02 48	04 09	05 28	06 48	
	22	153 55-2	35-3	351 31-8	13-1		6 38-7 15-8	57-9	45	17 02	17 32	18 06	02 52	04 07	05 21	06 36	
	23	168 55-3	36-2	6 03-9	13-2		6 54-5 15-9	57-9	N 40	17 10	17 37	18 09	02 56	04 06	05 16	06 25	
	24	183 55-3	S 11 37-1	20 36-1	13-1	N	7 10-4 15-7	57-8	35	17 16	17 42	18 11	02 59	04 05	05 11	06 16	
	SUNDAY	01	198 55-4	37-9	35 08-2	13-2		7 26-1 15-8	57-8	30	17 21	17 46	18 14	03 02	04 04	05 06	06 08
02		213 55-5	38-8	49 40-4	13-1		7 41-9 15-7	57-8	20	17 31	17 53	18 19	03 06	04 03	04 59	05 55	
03		228 55-6	39-7	64 12-5	13-1		7 57-6 15-6	57-8	N 10	17 40	18 01	18 26	03 10	04 01	04 52	05 43	
04		243 55-7	40-5	78 44-6	13-0		8 13-2 15-6	57-8	0	17 48	18 09	18 33	03 14	04 00	04 46	05 33	
05		258 55-8	41-4	93 16-6	13-1		8 28-8 15-5	57-7	S 10	17 56	18 18	18 43	03 17	03 59	04 40	05 22	
06		273 55-8	S 11 42-3	107 48-7	13-0	N	8 44-3 15-5	57-7	20	18 05	18 28	18 54	03 21	03 57	04 33	05 10	
07		288 55-9	43-2	122 20-7	13-0		8 59-8 15-4	57-7	30	18 15	18 40	19 09	03 26	03 56	04 26	04 57	
08		303 56-0	44-0	136 52-7	13-0		9 15-2 15-4	57-7	35	18 21	18 48	19 19	03 28	03 55	04 22	04 50	
09		318 56-1	44-9	151 24-7	13-0		9 30-6 15-3	57-7	40	18 28	18 57	19 31	03 31	03 54	04 17	04 41	
10		333 56-2	45-8	165 56-7	12-9		9 45-9 15-3	57-6	45	18 36	19 07	19 45	03 34	03 53	04 11	04 31	
MONDAY	11	348 56-2	46-6	180 28-6	12-9		10 01-2 15-2	57-6	S 50	18 46	19 21	20 04	03 38	03 51	04 05	04 19	
	12	3 56-3	S 11 47-5	195 00-5	12-9	N 10	16-4 15-2	57-6	52	18 51	19 27	20 14	03 39	03 50	04 02	04 14	
	13	18 56-4	48-4	209 32-4	12-9		10 31-6 15-1	57-6	54	18 56	19 34	20 24	03 41	03 50	03 58	04 08	
	14	33 56-5	49-2	224 04-3	12-8		10 46-7 15-0	57-5	56	19 01	19 43	20 37	03 43	03 49	03 55	04 01	
	15	48 56-6	50-1	238 36-1	12-8		11 01-7 15-0	57-5	58	19 07	19 52	20 51					

		ARIES		VENUS -3.4		MARS +0.3		JUPITER -1.2		SATURN +0.1		STARS													
G.M.T.		G.H.A.		G.H.A. Dec.		G.H.A. Dec.		G.H.A. Dec.		G.H.A. Dec.		Name	S.H.A.	Dec.											
d	h	°	'	°	'	°	'	°	'	°	'		°	'											
SATURDAY	25 00	33	12.4	204	09.2 S	2	11.6	98	40.9 S	23	42.8	194	37.3 S	6	40.9	358	48.0 N	10	52.8	Acamar	315	42.7 S	40	25.3	
	01	48	14.8	219	08.8	12.8	113	41.5	42.4	209	39.2	41.1	13	50.7	52.8					Achernar	335	50.3 S	57	23.3	
	02	63	17.3	234	08.4	14.0	128	42.1	42.1	224	41.2	41.3	28	53.4	52.7					Acrux	173	47.2 S	62	55.8	
	03	78	19.7	249	08.0	15.2	143	42.7	41.8	239	43.2	41.5	43	56.0	52.6					Adhara	255	38.3 S	28	55.4	
	04	93	22.2	264	07.6	16.4	158	43.2	41.4	254	45.1	41.7	58	58.7	52.6					Aldebaran	291	26.9 N	16	27.2	
	05	108	24.7	279	07.2	17.7	173	43.8	41.1	269	47.1	41.9	74	01.3	52.5										
	06	123	27.1	294	06.8 S	2	18.9	188	44.4 S	23	40.7	284	49.1 S	6	42.1	89	04.0 N	10	52.4	Alioth	166	49.7 N	56	07.3	
	07	138	29.6	309	06.4	20.1	203	45.0	40.4	299	51.0	42.3	104	06.6	52.4					Alkaid	153	25.0 N	49	27.4	
	08	153	32.1	324	06.0	21.3	218	45.6	40.1	314	53.0	42.5	119	09.3	52.3					Al Na'ir	28	24.6 S	47	06.7	
	09	168	34.5	339	05.6	22.5	233	46.2	39.7	329	55.0	42.7	134	12.0	52.2					Anilam	276	19.6 S	1	12.9	
	10	183	37.0	354	05.2	23.7	248	46.8	39.4	344	56.9	42.9	149	14.6	52.2					Alphard	218	28.5 S	8	31.4	
	11	198	39.5	9	04.8	24.9	263	47.4	39.0	359	58.9	43.1	164	17.3	52.1										
	12	213	41.9	24	04.4 S	2	26.1	278	47.9 S	23	38.7	15	00.8 S	6	43.3	179	19.9 N	10	52.0	Alphecca	126	39.2 N	26	48.9	
	13	228	44.4	39	04.0	27.4	293	48.5	38.3	30	02.8	43.5	194	22.6	52.0					Alpheratz	358	17.4 N	28	55.6	
	14	243	46.9	54	03.6	28.6	308	49.1	38.0	45	04.8	43.7	209	25.2	51.9					Altair	62	40.4 N	8	47.3	
	15	258	49.3	69	03.2	29.8	323	49.7	37.7	60	06.7	44.0	224	27.9	51.8					Ankaa	353	47.5 S	42	28.2	
	16	273	51.8	84	02.8	31.0	338	50.3	37.3	75	08.7	44.2	239	30.5	51.8					Antares	113	07.0 S	26	22.1	
	17	288	54.2	99	02.4	32.2	353	50.9	37.0	90	10.7	44.4	254	33.2	51.7										
	18	303	56.7	114	02.0 S	2	33.4	8	51.5 S	23	36.6	105	12.6 S	6	44.6	269	35.9 N	10	51.6	Arcturus	146	26.0 N	19	20.4	
	19	318	59.2	129	01.6	34.6	23	52.0	36.3	120	14.6	44.8	284	38.5	51.6					Atria	108	39.0 S	68	58.8	
	20	334	01.6	144	01.2	35.8	38	52.6	35.9	135	16.6	45.0	299	41.2	51.5					Avior	234	31.7 S	59	24.2	
	21	349	04.1	159	00.8	37.1	53	53.2	35.6	150	18.5	45.2	314	43.8	51.5					Bellatrix	279	07.1 N	6	19.7	
	22	4	06.6	174	00.4	38.3	68	53.8	35.2	165	20.5	45.4	329	46.5	51.4					Betelgeuse	271	36.7 N	7	24.4	
23	19	09.0	189	00.0	39.5	83	54.4	34.9	180	22.4	45.6	344	49.1	51.3											
SUNDAY	26 00	34	11.5	203	59.6 S	2	40.7	98	55.0 S	23	34.6	195	24.4 S	6	45.8	359	51.8 N	10	51.3	Canopus	264	10.5 S	52	40.3	
	01	49	14.0	218	59.2	41.9	113	55.6	34.2	210	26.4	46.0	14	54.5	51.2					Capella	281	22.8 N	45	58.2	
	02	64	16.4	233	58.8	43.1	128	56.2	33.9	225	28.3	46.2	29	57.1	51.1					Deneb	49	54.0 N	45	10.5	
	03	79	18.9	248	58.4	44.3	143	56.7	33.5	240	30.3	46.4	44	59.8	51.1					Denebola	183	07.4 N	14	44.5	
	04	94	21.4	263	58.0	45.5	158	57.3	33.2	255	32.3	46.6	60	02.4	51.0					Diphda	349	28.5 S	18	09.0	
	05	109	23.8	278	57.6	46.8	173	57.9	32.8	270	34.2	46.8	75	05.1	50.9										
	06	124	26.3	293	57.2 S	2	48.0	188	58.5 S	23	32.5	285	36.2 S	6	47.0	90	07.7 N	10	50.9	Dubhe	194	32.0 N	61	54.7	
	07	139	28.7	308	56.8	49.2	203	59.1	32.1	300	38.2	47.2	105	10.4	50.8					Elmath	278	54.0 N	28	35.1	
	08	154	31.2	323	56.4	50.4	218	59.7	31.8	315	40.1	47.4	120	13.1	50.7					Eltanin	91	01.7 N	51	29.6	
	09	169	33.7	338	56.0	51.6	234	00.3	31.4	330	42.1	47.6	135	15.7	50.7					Enif	34	19.3 N	9	44.3	
	10	184	36.1	353	55.6	52.8	249	00.8	31.1	345	44.0	47.8	150	18.4	50.6					Fomalhaut	15	59.9 S	29	47.0	
	11	199	38.6	8	55.2	54.0	264	01.4	30.7	0	46.0	48.0	165	21.0	50.5										
	12	214	41.1	23	54.8 S	2	55.2	279	02.0 S	23	30.4	15	48.0 S	6	48.2	180	23.7 N	10	50.5	Gacrux	172	38.5 S	56	56.5	
	13	229	43.5	38	54.4	56.5	294	02.6	30.0	30	49.9	48.4	195	26.3	50.4					Gienah	176	26.6 S	17	22.3	
	14	244	46.0	53	54.0	57.7	309	03.2	29.7	45	51.9	48.6	210	29.0	50.3					Hadar	149	35.7 S	60	13.7	
	15	259	48.5	68	53.6	2	58.9	324	03.8	29.3	60	53.9	48.8	225	31.7	50.3					Hamal	328	37.7 N	23	19.4
	16	274	50.9	83	53.2	3	00.1	339	04.4	29.0	75	55.8	49.0	240	34.3	50.2					Kaus Aust.	84	27.6 S	34	24.2
	17	289	53.4	98	52.8	01.3	354	05.0	28.6	90	57.8	49.2	255	37.0	50.1										
	18	304	55.8	113	52.4 S	3	02.5	9	05.5 S	23	28.2	105	59.8 S	6	49.4	270	39.6 N	10	50.1	Kochab	137	19.2 N	74	16.7	
	19	319	58.3	128	52.0	03.7	24	06.1	27.9	121	01.7	49.6	285	42.3	50.0					Markab	14	11.0 N	15	02.7	
	20	335	00.8	143	51.6	04.9	39	06.7	27.5	136	03.7	49.8	300	44.9	49.9					Menkar	314	49.2 N	3	58.6	
	21	350	03.2	158	51.2	06.2	54	07.3	27.2	151	05.6	50.0	315	47.6	49.9					Menkent	148	47.0 S	36	13.3	
	22	5	05.7	173	50.8	07.4	69	07.9	26.8	166	07.6	50.2	330	50.3	49.8					Miaplacidus	221	47.3 S	69	35.1	
23	20	08.2	188	50.4	08.6	84	08.5	26.5	181	09.6	50.4	345	52.9	49.7											
MONDAY	27 00	35	10.6	203	50.0 S	3	09.8	99	09.1 S	23	26.1	196	11.5 S	6	50.6	0	55.6 N	10	49.7	Mirfak	309	27.2 N	49	45.4	
	01	50	13.1	218	49.6	11.0	114	09.6	25.8	211	13.5	50.8	15	58.2	49.6					Nunki	76	39.2 S	26	20.3	
	02	65	15.6	233	49.2	12.2	129	10.2	25.4	226	15.5	51.0	31	00.9	49.5					Peacock	54	10.8 S	56	50.3	
	03	80	18.0	248	48.8	13.4	144	10.8	25.0	241	17.4	51.2	46	03.5	49.5					Pollux	244	07.8 N	28	06.1	
	04	95	20.5	263	48.4	14.6	159	11.4	24.7	256	19.4	51.4	61	06.2	49.4					Procyon	245	34.1 N	5	18.4	
	05	110	23.0	278	48.0	15.8	174	12.0	24.3	271	21.4	51.6	76	08.9	49.3										

G.M.T.	SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise								
	G.H.A.	Dec.	G.H.A.	D	Dec.	d		H.P.	Naut.		Civil	25	26	27	28				
d h	o	o	o	o	o	o	°	h m	h m	h m	h m	h m	h m	h m					
25 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23	183	57.3	S 11	57.9	9	21.2	12.5	N 13	13.9	14.4	57.3	N 70	05 40	06 52	08 01	14 14			
	198	57.3		58.8	23	52.7	12.5	13	28.3	14.3	57.3	68	05 38	06 44	07 45	14 42	13 45		
	213	57.4	11	59.6	38	24.2	12.4	13	42.6	14.1	57.3	66	05 37	06 37	07 33	15 04	14 34		
	228	57.5	12	00.5	52	55.6	12.4	13	56.7	14.2	57.2	64	05 36	06 32	07 23	15 21	15 06	14 37	
	243	57.6		01.4	67	27.0	12.3	14	10.9	14.0	57.2	62	05 35	06 27	07 14	15 35	15 30	15 23	15 11
	258	57.6		02.2	81	58.3	12.4	14	24.9	14.0	57.2	60	05 34	06 22	07 06	15 48	15 49	15 53	16 04
	273	57.7	S 12	03.1	96	29.7	12.2	N 14	38.9	13.8	57.2	N 58	05 33	06 18	07 00	15 58	16 05	16 16	16 37
	288	57.8		04.0	111	00.9	12.3	14	52.7	13.8	57.2	56	05 31	06 15	06 54	16 07	16 18	16 34	17 01
	303	57.9		04.8	125	32.2	12.2	15	06.5	13.7	57.1	54	05 30	06 12	06 48	16 16	16 30	16 50	17 21
	318	57.9		05.7	140	03.4	12.1	15	20.2	13.6	57.1	52	05 29	06 09	06 44	16 23	16 40	17 04	17 37
S A O T U R D F A Y	333	58.0		06.5	154	34.5	12.1	15	33.8	13.6	57.1	50	05 28	06 06	06 39	16 30	16 50	17 16	17 51
	348	58.1		07.4	169	05.6	12.1	15	47.4	13.4	57.1	45	05 25	06 00	06 30	16 44	17 09	17 41	18 20
	3 58.1	S 12	08.3	183	36.7	12.0	N 16	00.8	13.4	57.0	N 40	05 23	05 54	06 22	16 56	17 26	18 01	18 43	
	18	58.2		09.1	198	07.7	12.0	16	14.2	13.3	57.0	35	05 20	05 49	06 15	17 06	17 39	18 17	19 02
	33	58.3		10.0	212	38.7	11.9	16	27.5	13.2	57.0	30	05 17	05 45	06 09	17 15	17 51	18 32	19 18
	48	58.4		10.8	227	09.6	11.9	16	40.7	13.0	57.0	20	05 10	05 36	05 59	17 31	18 12	18 57	19 45
	63	58.4		11.7	241	40.5	11.9	16	53.7	13.0	56.9	N 10	05 03	05 28	05 49	17 45	18 30	19 18	20 09
	78	58.5		12.6	256	11.4	11.8	17	06.7	13.0	56.9	0	04 55	05 19	05 41	17 58	18 47	19 38	20 31
	93	58.6	S 12	13.4	270	42.2	11.7	N 17	19.7	12.8	56.9	S 10	04 45	05 10	05 32	18 11	19 04	19 58	20 53
	108	58.6		14.3	285	12.9	11.7	17	32.5	12.7	56.9	20	04 33	04 59	05 22	18 25	19 22	20 20	21 17
M O N D A Y	123	58.7		15.1	299	43.6	11.7	17	45.2	12.6	56.8	30	04 17	04 46	05 11	18 41	19 44	20 46	21 45
	138	58.8		16.0	314	14.3	11.6	17	57.8	12.5	56.8	35	04 06	04 38	05 04	18 51	19 56	21 01	22 02
	153	58.8		16.9	328	44.9	11.6	18	10.3	12.4	56.8	40	03 54	04 29	04 57	19 01	20 11	21 18	22 21
	168	58.9		17.7	343	15.5	11.5	18	22.7	12.4	56.8	45	03 39	04 17	04 48	19 14	20 28	21 39	22 44
	183	59.0	S 12	18.6	357	46.0	11.5	N 18	35.1	12.2	56.7	S 50	03 19	04 03	04 38	19 30	20 50	22 06	23 15
	198	59.0		19.4	12	16.5	11.4	18	47.3	12.1	56.7	52	03 09	03 56	04 33	19 38	21 00	22 19	23 30
	213	59.1		20.3	26	46.9	11.4	18	59.4	12.0	56.7	54	02 58	03 49	04 28	19 46	21 12	22 34	23 47
	228	59.2		21.1	41	17.3	11.3	19	11.4	11.9	56.7	56	02 45	03 40	04 22	19 55	21 25	22 52	24 08
	243	59.2		22.0	55	47.6	11.3	19	23.3	11.8	56.6	58	02 29	03 30	04 15	20 06	21 41	23 13	24 35
	258	59.3		22.9	70	17.9	11.2	19	35.1	11.7	56.6	S 60	02 10	03 18	04 07	20 18	21 59	23 41	25 13
S A O T U R D F A Y	273	59.4	S 12	23.7	84	48.1	11.2	N 19	46.8	11.6	56.6								
	288	59.4		24.6	99	18.3	11.1	19	58.4	11.5	56.6								
	303	59.5		25.4	113	48.4	11.1	20	09.9	11.4	56.5								
	318	59.6		26.3	128	18.5	11.0	20	21.3	11.2	56.5								
	333	59.6		27.1	142	48.5	11.0	20	32.5	11.2	56.5								
	348	59.7		28.0	157	18.5	10.9	20	43.7	11.0	56.5								
	3 59.8	S 12	28.8	171	48.4	10.9	N 20	54.7	11.0	56.4	N 70	15 26	16 35	17 47	08 52				
	18	59.8		29.7	186	18.3	10.8	21	05.7	10.8	56.4	68	15 41	16 43	17 48	08 26	11 06		
	33	59.9		30.5	200	48.1	10.8	21	16.5	10.7	56.4	66	15 54	16 49	17 49	08 06	10 17		
	49	00.0		31.4	215	17.9	10.8	21	27.2	10.5	56.4	64	16 04	16 55	17 51	07 50	09 47	12 02	
M O N D A Y	64	00.0		32.2	229	47.7	10.6	21	37.7	10.5	56.3	62	16 13	17 00	17 52	07 37	09 24	11 17	13 18
	79	00.1		33.1	244	17.3	10.7	21	48.2	10.4	56.3	60	16 21	17 05	17 53	07 26	09 06	10 47	12 25
	94	00.2	S 12	33.9	258	47.0	10.6	N 21	58.6	10.2	56.3	N 58	16 28	17 09	17 55	07 16	08 51	10 25	11 53
	109	00.2		34.8	273	16.6	10.5	22	08.8	10.1	56.3	56	16 33	17 12	17 56	07 08	08 38	10 06	11 29
	124	00.3		35.6	287	46.1	10.5	22	18.9	10.0	56.2	54	16 39	17 15	17 57	07 01	08 27	09 51	11 10
	139	00.3		36.5	302	15.6	10.4	22	28.9	9.8	56.2	52	16 44	17 19	17 58	06 54	08 17	09 38	10 53
	154	00.4		37.3	316	45.0	10.4	22	38.7	9.8	56.2	50	16 48	17 21	17 59	06 48	08 08	09 26	10 39
	169	00.5		38.2	331	14.4	10.4	22	48.5	9.6	56.2	45	16 58	17 28	18 02	06 36	07 50	09 02	10 11
	184	00.5	S 12	39.0	345	43.8	10.3	N 22	58.1	9.5	56.1	N 40	17 06	17 33	18 05	06 25	07 35	08 43	09 49
	199	00.6		39.9	0	13.1	10.2	23	07.6	9.4	56.1	35	17 12	17 38	18 08	06 16	07 22	08 27	09 30
M O N D A Y	214	00.6		40.7	14	42.3	10.2	23	17.0	9.2	56.1	30	17 18	17 43	18 11	06 08	07 11	08 14	09 15
	229	00.7		41.6	29	11.5	10.2	23	26.2	9.1	56.1	20	17 29	17 51	18 18	05 55	06 52	07 50	08 48
	244	00.8		42.4	43	40.7	10.1	23	35.3	9.0	56.0	N 10	17 39	18 00	18 25	05 43	06 36	07 30	08 25
	259	00.8		43.3	58	09.8	10.1	23	44.3	8.9	56.0	0	17 47	18 09	18 33	05 33	06 21	07 11	08 04
	274	00.9	S 12	44.1	72	38.9	10.0	N 23	53.2	8.7	56.0	S 10	17 57	18 18	18 43	05 22	06 06	06 53	07 42
	289	00.9		45.0	87	07.9	10.0	24	01.9	8.6	56.0	20	18 06	18 29	18 56	05 10	05 50	06 33	07 19
	304	01.0		45.8	101	36.9	9.9	24	10.5	8.5	55.9	30	18 18	18 43	19 12	04 57	05 32	06 10	06 53
	319	01.1		46.7	116	05.8	9.9	24	19.0	8.3	55.9	35	18 24	18 51	19 22	04 50	05 21	05 56	06 37
	334	01.1		47.5	130	34.7	9.9	24	27.3	8.3	55.9	40	18 32	19 00	19 35	04 41	05 09	05 41	06 19
	349	01.2		48.4	145	03.6	9.8	24	35.6	8.0	55.9	45	18 40	19 12	19 50	04 31	04 55	05 23	05 58
M O N D A Y	4 01.2	S 12	49.2	159	32.4	9.8	N 24	43.6	8.0	55.8	S 50	18 51	19 26	20 11	04 19	04 37	05 00	05 30	
	19	01.3		50.0	174	01.2	9.7	24	51.6	7.8	55.8	52	18 56	19 33	20 21	04 14	04 29	04 49	05 17
	34	01.3		50.9	188	29.9	9.7	24	59.4	7.7	55.8	54	19 02	19 41	20 32	04 08	04 20	04 37	05 02
	49	01.4																	

G.M.T.	ARIES			VENUS -3.4			MARS +0.4			JUPITER -1.2			SATURN +0.1			STARS		
	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "
28	00	36 09.8	203 40.3 S	3 38.8	99 23.1 S	23 17.5	196 58.7 S	6 55.4	1 59.4 N	10 48.1	Acamar	315 42.7 S	40 25.3					
01	51 12.2	218 39.9	40.1	114 23.7	17.1	212 00.7	55.8	17 02.0	48.0		Achernar	335 50.3 S	57 23.3					
02	66 14.7	233 39.5	41.3	129 24.3	16.7	227 02.6	55.8	32 04.7	48.0		Adhara	173 47.2 S	62 55.8					
03	81 17.2	248 39.1	42.5	144 24.9	16.4	242 04.6	56.0	47 07.3	47.9		Aldebaran	255 38.3 S	28 55.4					
04	96 19.6	263 38.7	43.7	159 25.5	16.0	257 06.5	56.2	62 10.0	47.8									
05	111 22.1	278 38.3	44.9	174 26.0	15.6	272 08.5	56.4	77 12.6	47.8									
06	126 24.5	293 37.9 S	3 46.1	189 26.6 S	23 15.3	287 10.5 S	6 56.6	92 15.3 N	10 47.7		Alioth	166 49.7 N	56 07.3					
07	141 27.0	308 37.5	47.3	204 27.2	14.9	302 12.4	56.8	107 18.0	47.6		Alkaid	153 25.0 N	49 27.8					
08	156 29.5	323 37.1	48.5	219 27.8	14.5	317 14.4	57.0	122 20.6	47.6		Al Na'ir	28 24.6 S	47 06.7					
09	171 31.9	338 36.7	49.7	234 28.4	14.2	332 16.4	57.2	137 23.3	47.5		Alnilam	276 19.5 S	1 12.9					
10	186 34.4	353 36.3	50.9	249 29.0	13.8	347 18.3	57.4	152 25.9	47.4		Alphard	218 28.5 S	8 31.4					
11	201 36.9	8 35.8	52.1	264 29.6	13.4	2 20.3	57.6	167 28.6	47.4									
12	216 39.3	23 35.4 S	3 53.4	279 30.2 S	23 13.1	17 22.3 S	6 57.8	182 31.2 N	10 47.3		Alphecca	126 39.2 N	26 48.9					
13	231 41.8	38 35.0	54.6	294 30.7	12.7	32 24.2	58.0	197 33.9	47.3		Alpheratz	358 17.4 N	28 55.6					
14	246 44.3	53 34.6	55.8	309 31.3	12.3	47 26.2	58.2	212 36.6	47.2		Altair	62 40.4 N	8 47.3					
15	261 46.7	68 34.2	57.0	324 31.9	12.0	62 28.2	58.4	227 39.2	47.1		Ankaa	353 47.5 S	42 28.2					
16	276 49.2	83 33.8	58.2	339 32.5	11.6	77 30.1	58.6	242 41.9	47.1		Antares	113 07.0 S	26 22.1					
17	291 51.7	98 33.4	59.4	354 33.1	11.2	92 32.1	58.8	257 44.5	47.0									
18	306 54.1	113 33.0 S	4 00.6	9 33.7 S	23 10.8	107 34.1 S	6 59.0	272 47.2 N	10 46.9		Arcturus	146 26.0 N	19 20.4					
19	321 56.6	128 32.6	01.8	24 34.3	10.5	122 36.0	59.2	287 49.8	46.9		Atria	108 39.0 S	68 58.8					
20	336 59.0	143 32.2	03.0	39 34.8	10.1	137 38.0	59.4	302 52.5	46.9		Avior	234 31.7 S	59 24.3					
21	352 01.5	158 31.8	04.2	54 35.4	09.7	152 40.0	59.6	317 55.2	46.7		Bellatrix	279 07.1 N	6 19.7					
22	7 04.0	173 31.4	05.4	69 36.0	09.4	167 41.9	6 00.8	332 57.8	46.7		Betelgeuse	271 36.7 N	7 24.4					
23	22 06.4	188 30.9	06.6	84 36.6	09.0	182 43.9	7 00.0	348 00.5	46.6									
29	00	37 08.9	203 30.5 S	4 07.8	99 37.2 S	23 08.6	197 45.9 S	7 00.2	3 03.1 N	10 46.5	Canopus	264 10.5 S	52 40.3					
01	52 11.4	218 30.1	09.1	114 37.8	08.2	212 47.8	00.4	18 05.8	46.5		Capella	281 22.8 N	45 58.2					
02	67 13.8	233 29.7	10.3	129 38.4	07.9	227 49.8	00.6	33 08.5	46.4		Deneb	49 54.0 N	45 10.5					
03	82 16.3	248 29.3	11.5	144 38.9	07.5	242 51.8	00.8	48 11.1	46.3		Denebola	183 07.4 N	14 44.5					
04	97 18.8	263 28.9	12.7	159 39.5	07.1	257 53.7	00.9	63 13.8	46.3		Diphda	349 28.5 S	18 09.0					
05	112 21.2	278 28.5	13.9	174 40.1	06.7	272 55.7	01.1	78 16.4	46.2									
06	127 23.7	293 28.1 S	4 15.1	189 40.7 S	23 06.4	287 57.7 S	7 01.3	93 19.1 N	10 46.1		Dubhe	194 31.9 N	61 54.7					
07	142 26.2	308 27.7	16.3	204 41.3	06.0	302 59.6	01.5	108 21.7	46.1		Elnath	278 54.0 N	28 35.2					
08	157 28.6	323 27.2	17.5	219 41.9	05.6	318 01.6	01.7	123 24.4	46.0		Eltanin	91 01.8 N	51 29.6					
09	172 31.1	338 26.8	18.7	234 42.5	05.2	333 03.6	01.9	138 27.1	46.0		Enif	34 19.3 N	9 44.3					
10	187 33.5	353 26.4	19.9	249 43.0	04.9	348 05.5	02.1	153 29.7	45.9		Fomalhaut	15 59.9 S	29 47.0					
11	202 36.0	8 26.0	21.1	264 43.6	04.5	3 07.5	02.3	168 32.4	45.8									
12	217 38.5	23 25.6 S	4 22.3	279 44.2 S	23 04.1	18 09.4 S	7 02.5	183 35.0 N	10 45.8		Gacrux	172 38.5 S	56 56.5					
13	232 40.9	38 25.2	23.5	294 44.8	03.7	33 11.4	02.7	198 37.7	45.7		Gienah	176 26.5 S	17 22.3					
14	247 43.4	53 24.8	24.7	309 45.4	03.3	48 13.4	02.9	213 40.3	45.6		Hadar	149 35.7 S	60 13.7					
15	262 45.9	68 24.4	26.0	324 46.0	03.0	63 15.3	03.1	228 43.0	45.6		Hamal	328 37.7 N	23 19.4					
16	277 48.3	83 23.9	27.2	339 46.6	02.6	78 17.3	03.3	243 45.7	45.5		Kaus Aust.	84 27.6 S	34 24.2					
17	292 50.8	98 23.5	28.4	354 47.1	02.2	93 19.3	03.5	258 48.3	45.4									
18	307 53.3	113 23.1 S	4 29.6	9 47.7 S	23 01.8	108 21.2 S	7 03.7	273 51.0 N	10 45.4		Kochab	137 19.2 N	74 16.7					
19	322 55.7	128 22.7	30.8	24 48.3	01.4	123 23.2	03.9	288 53.6	45.3		Markab	14 11.0 N	15 02.7					
20	337 58.2	143 22.3	32.0	39 48.9	01.1	138 25.2	04.1	303 56.3	45.2		Menkar	314 49.2 N	3 58.6					
21	353 00.7	158 21.9	33.2	54 49.5	00.7	153 27.1	04.3	318 59.0	45.2		Menkent	148 47.0 S	36 13.3					
22	8 03.1	173 21.5	34.4	69 50.1	23 00.3	168 29.1	04.5	334 01.6	45.1		Miaplacidus	221 47.3 S	69 35.1					
23	23 05.6	188 21.1	35.6	84 50.6	22 59.9	183 31.1	04.7	349 04.3	45.0									
30	00	38 08.0	203 20.6 S	4 36.8	99 51.2 S	22 59.5	198 33.0 S	7 04.9	4 06.9 N	10 45.0	Mirfak	309 27.2 N	49 45.4					
01	53 10.5	218 20.2	38.0	114 51.8	59.1	213 35.0	05.1	19 09.6	44.9		Nunki	76 39.2 S	26 20.3					
02	68 13.0	233 19.8	39.2	129 52.4	58.8	228 37.0	05.3	34 12.2	44.8		Peacock	54 10.8 S	56 50.3					
03	83 15.4	248 19.4	40.4	144 53.0	58.4	243 38.9	05.5	49 14.9	44.8		Pollux	244 07.8 N	28 06.1					
04	98 17.9	263 19.0	41.6	159 53.6	58.0	258 40.9	05.7	64 17.6	44.7		Procyon	245 34.0 N	5 18.4					
05	113 20.4	278 18.6	42.8	174 54.2	57.6	273 42.9	05.9	79 20.2	44.6									
06	128 22.8	293 18.1 S	4 44.0	189 54.7 S	22 57.2	288 44.8 S	7 06.1	94 22.9 N	10 44.6		Rasalhague	96 37.2 N	12 34.9					
07	143 25.3	308 17.7	45.2	204 55.3	56.8	303 46.8	06.3	109 25.5	44.5		Regulus	208 18.6 N	12 07.0					
08	158 27.8	323 17.3	46.4	219 55.9	56.5	318 48.8	06.5	124 28.2	44.5		Rigel	281 43.4 S	8 13.8					
09	173 30.2	338 16.9	47.6	234 56.5	56.1	333 50.7	06.7	139 30.8	44.4		Rigel Kent.	140 37.6 S	60 42.6					
10	188 32.7	353 16.5	48.8	249 57.1	55.7	348 52.7	06.9	154 33.5	44.3		Sabik	102 50.6 S	15 41.4					
11	203 35.2	8 16.1	50.0	264 57.7	55.3	3 54.7	07.1	169 36.2	44.3									
12	218 37.6	23 15.6 S	4 51.3	279 58.3 S	22 54.9	18 56.6 S	7 07.3	184 38.8 N	10 44.2		Schedar	350 17.9 N	56 22.6					
13	233 40.1	38 15.2	52.5	294 58.8	54.5	33 58.6	07.5	199 41.5	44.1		Shaula	97 06.9 S	37 05.2					
14	248 42.5	53 14.8	53.7	309 59.4	54.1	49 00.6	07.7	214 44.1	44.1		Sirius	259 02.6 S	16 40.1					
15	263 45.0	68 14.4	54.9	325 00.0	53.7	64 02.5	07.9	229 46.8	44.0		Spica	159 06.3 S	11 00.2					
16	278 47.5	83 14.0	56.1	340 00.6	53.4	79 04.5	08.1	244 49.4	43.9		Suhail	223 16.9 S	43 18.2					
17	293 49.9	98 13.5	57.3	355 01.2	53.0	94 06.5	08.3	259 52.1	43.9									
18	308 52.4	113 13.1 S	4 58.5	10 01.8 S	22 52.6	109 08.4 S	7 08.5	274 54.8 N	10 43.8		Vega	81 01.5 N	38 45.4					
19	323 54.9	128 12.7	4 59.7	25 02.4	52.2	124 10.4	08.7	289 57.4	43.7		Zuben'ubi	137 42.3 S	15 55.0					
20	338 57.3	143 12.3	5 00.9	40 03.0	51.8	139 12.4	08.9	305 00.1	43.7									
21	353 59.8	158 11.9	02.1	55 03.5	51.4	154 14.3	09.1	320 02.7	43.6									

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise									
		G.H.A.	Dec.	G.H.A.	ψ	Dec.	d		H.P.	Naut.		Civil	28	29	30	31					
d	h	°	'	°	'	°	'	°	'	°	'	°	'	°	'	°	'				
TUESDAY	28 00	184	01.9	S 12	59.3	333	15.2	9.3	N 26	10.0	6.3	55.6	N 72	05 53	07 15	08 37					
	01	199	01.9	13	00.2	347	43.5	9.3	26	16.3	6.2	55.5	N 70	05 50	07 03	08 15					
	02	214	02.0		01.0	2	11.8	9.3	26	22.5	6.0	55.5	68	05 48	06 54	07 57					
	03	229	02.0		01.8	16	40.1	9.2	26	28.5	5.9	55.5	66	05 46	06 47	07 44					
	04	244	02.1		02.7	31	08.3	9.2	26	34.4	5.7	55.5	64	05 44	06 40	07 32					
	05	259	02.1		03.5	45	36.5	9.2	26	40.1	5.6	55.4	62	05 42	06 34	07 22	15 11		16 22	18 32	
	06		274	02.2	S 13	04.4	60	04.7	9.2	N 26	45.7	5.5	55.4	60	05 40	06 29	07 14	16 04	16 36	17 41	19 10
	07		289	02.3		05.2	74	32.9	9.2	26	51.2	5.3	55.4	N 58	05 39	06 25	07 07	16 37	17 15	18 17	19 36
	08		304	02.3		06.0	89	01.1	9.1	26	56.5	5.2	55.4	56	05 37	06 21	07 00	17 01	17 43	18 43	19 57
	09		319	02.4		06.9	103	29.2	9.1	27	01.7	5.0	55.4	54	05 36	06 17	06 54	17 20	18 04	19 03	20 14
	10		334	02.4		07.7	117	57.3	9.1	27	06.7	4.9	55.3	52	05 34	06 14	06 49	17 37	18 22	19 20	20 28
	11		349	02.4		08.5	132	25.4	9.0	27	11.6	4.7	55.3	50	05 33	06 11	06 44	17 51	18 37	19 35	20 41
	12			4 02.5	S 13	09.4	146	53.4	9.1	N 27	16.3	4.6	55.3	45	05 29	06 04	06 34	18 20	19 08	20 05	21 07
	13			19 02.5		10.2	161	21.5	9.0	27	20.9	4.4	55.3	N 40	05 26	05 57	06 25	18 43	19 32	20 28	21 28
	14			34 02.6		11.1	175	49.5	9.0	27	25.3	4.3	55.2	35	05 22	05 52	06 18	19 02	19 52	20 47	21 45
	15			49 02.6		11.9	190	17.5	9.0	27	29.6	4.2	55.2	30	05 19	05 47	06 11	19 18	20 08	21 03	22 00
	16			64 02.7		12.7	204	45.5	9.0	27	33.8	4.0	55.2	20	05 11	05 38	06 00	19 45	20 37	21 31	22 25
	17			79 02.7		13.6	219	13.5	8.9	27	37.8	3.9	55.2	N 10	05 03	05 28	05 50	20 09	21 01	21 54	22 46
	18													0	04 54	05 19	05 40	20 31	21 24	22 16	23 06
	19			94 02.8	S 13	14.4	233	41.4	9.0	N 27	41.7	3.7	55.2	S 10	04 44	05 09	05 31	20 53	21 47	22 38	23 26
	20			109 02.8		15.2	248	09.4	8.9	27	45.4	3.5	55.1	20	04 31	04 58	05 20	21 17	22 12	23 02	23 48
	21			124 02.9		16.1	262	37.3	9.0	27	48.9	3.5	55.1	30	04 13	04 43	05 08	21 45	22 40	23 29	24 12
	22			139 02.9		16.9	277	05.3	8.9	27	52.4	3.2	55.1	35	04 03	04 35	05 01	22 02	22 57	23 45	24 27
	23			154 03.0		17.7	291	33.2	8.9	27	55.6	3.2	55.1	40	03 50	04 24	04 53	22 21	23 17	24 04	00 04
			169 03.0		18.6	306	01.1	9.0	27	58.8	3.0	55.1	45	03 33	04 12	04 44	22 44	23 41	24 27	00 27	
WEDNESDAY	29 00	184	03.1	S 13	19.4	320	29.1	8.9	N 28	01.8	2.8	55.0	S 50	03 12	03 57	04 32	23 15	24 12	00 12	00 56	
	01	199	03.1		20.2	334	57.0	8.9	28	04.6	2.7	55.0	52	03 01	03 49	04 27	23 30	24 27	00 27	01 10	
	02	214	03.1		21.1	349	24.9	8.9	28	07.3	2.5	55.0	54	02 49	03 41	04 21	23 47	24 45	00 45	01 26	
	03	229	03.2		21.9	3 52.8	8.9	28	09.8	2.4	55.0	56	02 35	03 32	04 15	24 08	00 08	01 07	01 46		
	04	244	03.2		22.7	18 20.7	8.9	28	12.2	2.3	55.0	58	02 18	03 21	04 07	24 35	00 35	01 35	02 10		
	05	259	03.3		23.5	32 48.6	8.9	28	14.5	2.1	54.9	S 60	01 56	03 09	03 59	25 13	01 13	02 16	02 43		
	06		274	03.3	S 13	24.4	47	16.5	9.0	N 28	16.6	2.0	54.9	Lat.		Sun-set		Twilight		Moonset	
	07		289	03.4		25.2	61	44.5	8.9	28	18.6	1.8	54.9			Civil		Naut.		28	
	08		304	03.4		26.0	76	12.4	8.9	28	20.4	1.6	54.9	o		h m		h m		h m	
	09		319	03.4		26.9	90	40.3	9.0	28	22.0	1.6	54.9	h m		h m		h m		h m	
	10		334	03.5		27.7	105	08.3	8.9	28	23.6	1.3	54.9	N 72		14 49		16 11		17 32	
	11		349	03.5		28.5	119	36.2	9.0	28	24.9	1.3	54.8	N 70		15 11		16 23		17 35	
	12			4 03.6	S 13	29.4	134	04.2	8.9	N 28	26.2	1.0	54.8	68		15 29		16 32		17 38	
	13			19 03.6		30.2	148	32.1	9.0	28	27.2	1.0	54.8	66		15 43		16 40		17 40	
	14			34 03.6		31.0	163	00.1	9.0	28	28.2	0.8	54.8	64		15 54		16 46		17 42	
	15			49 03.7		31.8	177	28.1	9.0	28	29.0	0.6	54.8	62		16 04		16 52		17 44	
	16			64 03.7		32.7	191	56.1	9.1	28	29.6	0.5	54.8	60		16 13		16 57		17 46	
	17			79 03.8		33.5	206	24.2	9.0	28	30.1	0.4	54.7	N 58		16 20		17 02		17 48	
	18			94 03.8	S 13	34.3	220	52.2	9.1	N 28	30.5	0.2	54.7	56		16 27		17 06		17 50	
	19			109 03.8		35.1	235	20.3	9.1	28	30.7	0.0	54.7	54		16 32		17 09		17 51	
	20			124 03.9		36.0	249	48.4	9.1	28	30.7	0.0	54.7	52		16 38		17 13		17 53	
	21			139 03.9		36.8	264	16.5	9.2	28	30.7	0.3	54.7	50		16 43		17 16		17 54	
	22			154 04.0		37.6	278	44.7	9.1	28	30.4	0.3	54.7	45		16 53		17 23		17 58	
	23			169 04.0		38.4	293	12.8	9.2	28	30.1	0.5	54.6	N 40		17 02		17 30		18 01	
THURSDAY	30 00	184	04.0	S 13	39.3	307	41.0	9.2	N 28	29.6	0.7	54.6	35		17 09		17 35		18 05		
	01	199	04.1		40.1	322	09.2	9.3	28	28.9	0.8	54.6	30		17 16		17 40		18 08		
	02	214	04.1		40.9	336	37.5	9.3	28	28.1	0.9	54.6	20		17 27		17 50		18 16		
	03	229	04.1		41.7	351	05.8	9.3	28	27.2	1.1	54.6	N 10		17 38		17 59		18 24		
	04	244	04.2		42.6	5 34.1	9.3	28	26.1	1.2	54.6	0	17 47		18 09		18 33		18 57		
	05	259	04.2		43.4	20 02.4	9.4	28	24.9	1.4	54.6	S 10	17 57		18 19		18 44		19 09		
	06		274	04.2	S 13	44.2	34	30.8	9.4	N 28	23.5	1.5	54.5	20		18 08		18 30		18 57	
	07		289	04.3		45.0	48	59.2	9.5	28	22.0	1.6	54.5	30		18 20		18 45		19 15	
	08		304	04.3		45.8	63	27.7	9.4	28	20.4	1.8	54.5	35		18 27		18 54		19 26	
	09		319	04.3		46.7	77	56.1	9.6	28	18.6	1.9	54.5	40		18 35		19 04		19 39	
	10		334	04.4		47.5	92	24.7	9.5	28	16.7	2.1	54.5	45		18 45		19 16		19 56	
	11		349	04.4		48.3	106	53.2	9.6	28	14.6	2.2	54.5	S 50		18 56		19 32		20 17	
	12			4 04.4	S 13	49.1	121	21.8	9.7	N 28	12.4	2.3	54.5	52		19 02		19 39		20 28	
	13			19 04.5		49.9	135	50.5	9.6	28	10.1	2.5	54.5	54		19 08		19 48		20 41	
	14			34 04.5		50.8	150	19.1	9.8	28	07.6	2.6	54.5	56		19 14		19 57		20 55	
	15			49 04.5		51.6	164	47.9	9.7	28	05.0	2.8	54.4	58		19 22		20 08		21 13	
	16			64 04.6		52.4	179	16.6	9.9	28	02.2	2.9	54.4	S 60		19 30		20 21		21 35	
	17			79 04.6		53.2	193	45.5	9.8	27	59.3	3.0	54.4								
	18			94 04.6	S 13	54.0	208	14.3	9.9	N 27	56.3	3.1	54.4	Day		SUN		Mer. Pass.		MOON	
	19			109 04.7		54.8	222	43.2	10.0	27	53.2	3.3	54.4	Eqn. of Time		00 ^h		Mer. Upper		Pass. Lower	
	20			124 04.7		55.7	237	12.2	10.0	27	49.9	3.4	54.4	m s		m s		h m		h m	
	21			139 04.7		56.5	251	41.2	10.0	27	46.5	3.6	54.4	16 07		16 10		11 44		01 51	
	22			154 04.8		57.3	266	10.2	10.1	27	42.9	3.7	54.4	16 12		16 14		11 44		02 44	
	23			169 04.8		58.1	280	39.3	10.2	27	39.2	3.8	54.4	16 16		16 18		11 44		03 37	
			S.D. 16.1	d	0.8	S.D. 15.1	14.9	14.8													

G.M.T.		ARIES			VENUS -3.4			MARS +0.4			JUPITER -1.2			SATURN +0.1			STARS			
		G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	Name	S.H.A.	Dec.				
d	h	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	
31	00	39	07.2		203	10.6	S 5 05.7	100	05.3	S 22 50.2	199	20.2	S 7 09.7	5	10.7	N 10 43.4	Acamar	315	42.7	S 40 25.3
	01	54	09.7		218	10.2	06.9	115	05.9	49.8	214	22.2	09.9	20	13.4	43.3	Achernar	335	50.3	S 57 23.3
	02	69	12.1		233	09.8	08.1	130	06.5	49.5	229	24.2	10.1	35	16.0	43.3	Acrux	173	47.2	S 62 55.7
	03	84	14.6		248	09.4	09.3	145	07.1	49.1	244	26.1	10.3	50	18.7	43.2	Adhara	255	38.2	S 28 55.4
	04	99	17.0		263	08.9	10.5	160	07.6	48.7	259	28.1	10.5	65	21.3	43.2	Aldebaran	291	26.9	N 16 27.2
05	114	19.5		278	08.5	11.7	175	08.2	48.3	274	30.1	10.7	80	24.0	43.1					
06	129	22.0		293	08.1	S 5 12.9	190	08.8	S 22 47.9	289	32.0	S 7 10.9	95	26.6	N 10 43.0	Alioth	166	49.7	N 56 07.3	
07	144	24.4		308	07.7	14.1	205	09.4	47.5	304	34.0	11.1	110	29.3	43.0	Alkaid	153	25.0	N 49 27.7	
08	159	26.9		323	07.2	15.3	220	10.0	47.1	319	36.0	11.3	125	32.0	42.9	Al Na'ir	28	24.6	S 47 06.7	
F 09	174	29.4		338	06.8	16.5	235	10.6	46.7	334	37.9	11.4	140	34.6	42.8	Alnilam	276	19.5	S 1 12.9	
R 10	189	31.8		353	06.4	17.7	250	11.2	46.3	349	39.9	11.6	155	37.3	42.8	Alphard	218	28.5	S 8 31.4	
I 11	204	34.3		8	06.0	18.9	265	11.7	45.9	4	41.9	11.8	170	39.9	42.7					
D 12	219	36.8		23	05.6	S 5 20.1	280	12.3	S 22 45.5	19	43.8	S 7 12.0	185	42.6	N 10 42.6	Alphecca	126	39.2	N 26 48.9	
A 13	234	39.2		38	05.1	21.3	295	12.9	45.1	34	45.8	12.2	200	45.3	42.6	Alpheratz	358	17.4	N 28 55.6	
Y 14	249	41.7		53	04.7	22.5	310	13.5	44.7	49	47.8	12.4	215	47.9	42.5	Altair	62	40.4	N 8 47.3	
15	264	44.2		68	04.3	23.7	325	14.1	44.3	64	49.7	12.6	230	50.6	42.4	Ankaa	353	47.5	S 42 28.2	
16	279	46.6		83	03.9	24.9	340	14.7	43.9	79	51.7	12.8	245	53.2	42.4	Antares	113	07.0	S 26 22.1	
17	294	49.1		98	03.4	26.1	355	15.3	43.5	94	53.7	13.0	260	55.9	42.3					
18	309	51.5		113	03.0	S 5 27.3	10	15.8	S 22 43.1	109	55.6	S 7 13.2	275	58.5	N 10 42.2	Arcturus	146	26.0	N 19 20.3	
19	324	54.0		128	02.6	28.5	25	16.4	42.7	124	57.6	13.4	291	01.2	42.2	Atria	108	39.0	S 68 58.7	
20	339	56.5		143	02.2	29.7	40	17.0	42.3	139	59.6	13.6	306	03.9	42.1	Avior	234	31.6	S 59 24.3	
21	354	58.9		158	01.7	30.9	55	17.6	41.9	155	01.5	13.8	321	06.5	42.1	Bellatrix	279	07.1	N 6 19.7	
22	10	01.4		173	01.3	32.1	70	18.2	41.5	170	03.5	14.0	336	09.2	42.0	Betelgeuse	271	36.7	N 7 24.4	
23	25	03.9		188	00.9	33.3	85	18.8	41.1	185	05.5	14.2	351	11.8	41.9					
I 00	40	06.3		203	00.5	S 5 34.5	100	19.4	S 22 40.7	200	07.5	S 7 14.4	6	14.5	N 10 41.9	Canopus	264	10.5	S 52 40.3	
01	55	08.8		218	00.1	35.7	115	19.9	40.3	215	09.4	14.6	21	17.1	41.8	Capella	281	22.7	N 45 58.2	
02	70	11.3		232	59.6	36.9	130	20.5	39.9	230	11.4	14.8	36	19.8	41.7	Deneb	49	54.0	N 45 10.5	
03	85	13.7		247	59.2	38.1	145	21.1	39.5	245	13.4	15.0	51	22.5	41.7	Denebola	183	07.3	N 14 44.5	
04	100	16.2		262	58.8	39.3	160	21.7	39.1	260	15.3	15.2	66	25.1	41.6	Diphda	349	28.5	S 18 09.0	
05	115	18.7		277	58.3	40.5	175	22.3	38.7	275	17.3	15.4	81	27.8	41.5					
06	130	21.1		292	57.9	S 5 41.7	190	22.9	S 22 38.3	290	19.3	S 7 15.6	96	30.4	N 10 41.5	Dubhe	194	31.9	N 61 54.7	
07	145	23.6		307	57.5	42.9	205	23.5	37.9	305	21.2	15.8	111	33.1	41.4	Elnath	278	54.0	N 28 35.2	
08	160	26.0		322	57.1	44.0	220	24.0	37.5	320	23.2	16.0	126	35.8	41.3	Eltanin	91	01.8	N 51 29.6	
S A 09	175	28.5		337	56.6	45.2	235	24.6	37.1	335	25.2	16.2	141	38.4	41.3	Enif	34	19.4	N 9 44.2	
T 10	190	31.0		352	56.2	46.4	250	25.2	36.7	350	27.1	16.4	156	41.1	41.2	Fomalhaut	15	59.9	S 29 47.0	
U 11	205	33.4		7	55.8	47.6	265	25.8	36.3	5	29.1	16.6	171	43.7	41.1					
R 12	220	35.9		22	55.4	S 5 48.8	280	26.4	S 22 35.9	20	31.1	S 7 16.8	186	46.4	N 10 41.1	Gacrux	172	38.5	S 56 56.5	
D 13	235	38.4		37	54.9	50.0	295	27.0	35.5	35	33.0	17.0	201	49.0	41.0	Gienah	176	26.5	S 17 22.3	
A 14	250	40.8		52	54.5	51.2	310	27.6	35.1	50	35.0	17.2	216	51.7	41.0	Hadar	149	35.7	S 60 13.7	
Y 15	265	43.3		67	54.1	52.4	325	28.2	34.7	65	37.0	17.4	231	54.4	40.9	Hamal	328	37.6	N 23 19.4	
16	280	45.8		82	53.6	53.6	340	28.7	34.3	80	38.9	17.6	246	57.0	40.8	Kaus Aust.	84	27.6	S 34 24.2	
17	295	48.2		97	53.2	54.8	355	29.3	33.9	95	40.9	17.7	261	59.7	40.8					
18	310	50.7		112	52.8	S 5 56.0	10	29.9	S 22 33.5	110	42.9	S 7 17.9	277	02.3	N 10 40.7	Kochab	137	19.2	N 74 16.7	
19	325	53.2		127	52.3	57.2	25	30.5	33.1	125	44.8	18.1	292	05.0	40.6	Markab	14	11.0	N 15 02.7	
20	340	55.6		142	51.9	58.4	40	31.1	32.7	140	46.8	18.3	307	07.6	40.6	Menkar	314	49.2	N 3 58.6	
21	355	58.1		157	51.5	59.6	55	31.7	32.3	155	48.8	18.5	322	10.3	40.5	Menkent	148	47.0	S 36 13.3	
22	11	00.5		172	51.1	6 00.8	70	32.3	31.8	170	50.8	18.7	337	13.0	40.4	Miaplacidus	221	47.2	S 69 35.1	
23	26	03.0		187	50.6	02.0	85	32.8	31.4	185	52.7	18.9	352	15.6	40.4					
2 00	41	05.5		202	50.2	S 6 03.2	100	33.4	S 22 31.0	200	54.7	S 7 19.1	7	18.3	N 10 40.3	Mirfak	309	27.2	N 49 45.5	
01	56	07.9		217	49.8	04.4	115	34.0	30.6	215	56.7	19.3	22	20.9	40.2	Nunki	76	39.2	S 26 20.3	
02	71	10.4		232	49.3	05.5	130	34.6	30.2	230	58.6	19.5	37	23.6	40.2	Peacock	54	10.8	S 56 50.3	
03	86	12.9		247	48.9	06.7	145	35.2	29.8	246	00.6	19.7	52	26.2	40.1	Pollux	244	07.8	N 28 06.1	
04	101	15.3		262	48.5	07.9	160	35.8	29.4	261	02.6	19.9	67	28.9	40.0	Procyon	245	34.0	N 5 18.4	
05	116	17.8		277	48.0	09.1	175	36.4	29.0	276	04.5	20.1	82	31.6	40.0					
06	131	20.3		292	47.6	S 6 10.3	190	37.0	S 22 28.6	291	06.5	S 7 20.3	97	34.2	N 10 39.9	Rasalhague	96	37.2	N 12 34.8	
07	146	22.7		307	47.2	11.5	205	37.5	28.2	306	08.5	20.5	112	36.9	39.9	Regulus	208	18.5	N 12 07.0	
08	161	25.2		322	46.7	12.7	220	38.1	27.7	321	10.4	20.7	127	39.5	39.8	Rigel	281	43.4	S 8 13.8	
S 09	176	27.6		337	46.3	13.9	235	38.7	27.3	336	12.4	20.9	142	42.2	39.7	Rigel Kent.	140	37.6	S 60 42.6	
U 10	191	30.1		352	45.9	15.1	250	39.3	26.9	351	14.4	21.1	157	44.8	39.7	Sabik	102	50.6	S 15 41.4	
N 11	206	32.6		7	45.4	16.3	265	39.9	26.5	6	16.3	21.3	172	47.5	39.6					
D 12	221	35.0		22	45.0	S 6 17.5	280	40.5	S 22 26.1	21	18.3	S 7 21.5	187	50.2	N 10 39.5	Schedar	350	17.9	N 56 22.6	
A 13	236	37.5		37	44.6	18.7	295	41.1	25.7	36	20.3	21.7	202	52.8	39.5	Shaula	97	06.9	S 37 05.2	
Y 14	251	40.0		52	44.1	19.8	310	41.6	25.3	51	22.3	21.9	217	55.5	39.4	Sirius	259	02.6	S 16 40.1	
15	266	42.4		67	43.7	21.0	325	42.2	24.8	66	24.2	22.1	232	58.1	39.3	Spica	159	06.3	S 11 00.2	
16	281	44.9		82	43.3	22.2	340	42.8	24.4	81	26.2	22.3	248	00.8	39.3	Suhail	223	16.9	S 4	

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise								
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.	Civil		31	1	2	3				
d	h	°	'	°	'	°	'	"	h	m	h	m	h	m	h	m	h	m		
31	00	184	04.8	S 13	58.9	295	08.5	10.2	N 27	35.4	3.9	54.3	N 72	06 05	07 28	08 55				22 06
	01	199	04.8	S 13	59.7	309	37.7	10.3	27	31.5	4.1	54.3	N 70	06 01	07 15	08 30			19 56	22 34
	02	214	04.9	S 14	00.6	324	07.0	10.3	27	27.4	4.2	54.3	68	05 58	07 05	08 10			20 47	22 54
	03	229	04.9	S 14	01.4	338	36.3	10.4	27	23.2	4.4	54.3	66	05 55	06 56	07 54		18 59	21 18	23 10
	04	244	04.9	S 14	02.2	353	05.7	10.4	27	18.8	4.4	54.3	64	05 52	06 49	07 42		19 49	21 41	23 23
05	259	05.0	S 14	03.0	7	35.1	10.5	27	14.4	4.6	54.3	62	05 49	06 42	07 31	18 32	20 20	22 00	23 34	
06	274	05.0	S 14	03.8	22	04.6	10.5	N 27	09.8	4.7	54.3	60	05 47	06 36	07 22	19 10	20 43	22 15	23 43	
07	289	05.0	S 14	04.6	36	34.1	10.6	27	05.1	4.9	54.3	N 58	05 45	06 31	07 14	19 36	21 01	22 27	23 51	
08	304	05.0	S 14	05.4	51	03.7	10.6	27	00.2	4.9	54.3	56	05 43	06 27	07 06	19 57	21 17	22 38	23 59	
09	319	05.1	S 14	06.2	65	33.3	10.7	26	55.3	5.1	54.3	54	05 41	06 23	07 00	20 14	21 30	22 48	24 05	
10	334	05.1	S 14	07.0	80	03.0	10.8	26	50.2	5.3	54.3	52	05 39	06 19	06 54	20 28	21 42	22 56	24 10	
11	349	05.1	S 14	07.9	94	32.8	10.8	26	44.9	5.3	54.3	50	05 37	06 15	06 49	20 41	21 52	23 04	24 16	
12	4	05.1	S 14	08.7	109	02.6	10.9	N 26	39.6	5.5	54.3	45	05 33	06 07	06 38	21 07	22 13	23 20	24 27	
13	19	05.2	S 14	09.5	123	02.5	11.0	26	34.1	5.6	54.3	N 40	05 29	06 01	06 29	21 28	22 30	23 33	24 36	
14	34	05.2	S 14	10.3	138	02.5	11.0	26	28.5	5.7	54.3	35	05 25	05 55	06 21	21 45	22 45	23 44	24 43	
15	49	05.2	S 14	11.1	152	02.5	11.0	26	22.8	5.8	54.3	30	05 21	05 49	06 14	22 00	22 57	23 54	24 50	
16	64	05.2	S 14	11.9	167	02.5	11.2	26	17.0	6.0	54.2	20	05 13	05 39	06 01	22 25	23 18	24 11	00 11	
17	79	05.2	S 14	12.7	181	32.7	11.2	26	11.0	6.0	54.2	N 10	05 04	05 29	05 50	22 46	23 37	24 25	00 25	
18	94	05.3	S 14	13.5	196	02.9	11.2	N 26	05.0	6.2	54.2	0	04 54	05 19	05 40	23 06	23 54	24 38	00 38	
19	109	05.3	S 14	14.3	210	33.1	11.3	25	58.8	6.3	54.2	S 10	04 43	05 08	05 30	23 26	24 11	00 11	00 52	
20	124	05.3	S 14	15.1	225	03.4	11.4	25	52.5	6.4	54.2	20	04 29	04 56	05 19	23 48	24 29	00 29	01 06	
21	139	05.3	S 14	15.9	239	33.8	11.4	25	46.1	6.6	54.2	30	04 10	04 40	05 06	24 12	00 12	00 50	01 22	
22	154	05.3	S 14	16.7	254	04.2	11.6	25	39.5	6.6	54.2	35	03 59	04 31	04 58	24 27	00 27	01 02	01 32	
23	169	05.4	S 14	17.5	268	34.8	11.5	25	32.9	6.8	54.2	40	03 45	04 20	04 49	00 04	00 43	01 16	01 43	
24												45	03 28	04 07	04 39	00 27	01 03	01 32	01 55	
1	00	184	05.4	S 14	18.4	283	05.3	11.6	N 25	26.1	6.9	54.2	S 50	03 05	03 51	04 27	00 56	01 28	01 52	02 10
02	01	199	05.4	S 14	19.2	297	35.9	11.7	25	19.2	7.0	54.2	52	02 54	03 43	04 21	01 10	01 40	02 02	02 17
03	02	214	05.4	S 14	20.0	312	06.6	11.8	25	12.2	7.1	54.2	54	02 41	03 34	04 15	01 26	01 54	02 12	02 25
04	03	229	05.4	S 14	20.8	326	37.4	11.8	25	05.1	7.2	54.2	56	02 25	03 24	04 08	01 46	02 10	02 24	02 34
05	04	244	05.5	S 14	21.6	341	08.2	11.9	24	57.9	7.3	54.2	58	02 06	03 13	04 00	02 10	02 28	02 38	02 44
06	05	259	05.5	S 14	22.4	355	39.1	12.0	24	50.6	7.5	54.2	S 60	01 41	02 59	03 51	02 43	02 52	02 55	02 55
07	06	274	05.5	S 14	23.2	10	10.1	12.0	N 24	43.1	7.5	54.2								
08	07	289	05.5	S 14	24.0	24	41.1	12.0	24	35.6	7.7	54.2	Lat.	Sun-set	Twilight		Moonset			
09	08	304	05.5	S 14	24.8	39	12.1	12.2	24	27.9	7.8	54.2			Civil	Naut.	31	1	2	3
10	09	319	05.6	S 14	25.6	53	43.3	12.2	24	20.1	7.8	54.2								
11	10	334	05.6	S 14	26.4	68	14.5	12.3	24	12.3	8.0	54.2								
12	11	349	05.6	S 14	27.2	82	45.8	12.3	24	04.3	8.1	54.2								
13	12	4	05.6	S 14	28.0	97	17.1	12.4	N 23	56.2	8.2	54.2	N 72	14 30	15 57	17 20				16 39
14	13	19	05.6	S 14	28.8	111	48.5	12.5	23	48.0	8.3	54.2	N 70	14 57	16 11	17 24			17 16	16 09
15	14	34	05.6	S 14	29.6	126	20.0	12.5	23	39.7	8.4	54.2	68	15 16	16 21	17 28			16 25	15 47
16	15	49	05.7	S 14	30.4	140	51.5	12.6	23	31.3	8.5	54.2	66	15 32	16 30	17 31		16 37	15 52	15 30
17	16	64	05.7	S 14	31.2	155	23.1	12.6	23	22.8	8.6	54.2	64	15 45	16 38	17 34		15 46	15 28	15 16
18	17	79	05.7	S 14	32.0	169	54.7	12.8	23	14.2	8.7	54.2	62	15 56	16 44	17 37	15 23	15 15	15 09	15 03
19	18	94	05.7	S 14	32.8	184	26.5	12.7	N 23	05.5	8.8	54.2	60	16 05	16 50	17 39	14 45	14 51	14 53	14 53
20	19	109	05.7	S 14	33.6	198	58.2	12.9	22	56.7	8.9	54.2	N 58	16 13	16 55	17 42	14 18	14 32	14 40	14 44
21	20	124	05.7	S 14	34.4	213	30.1	12.9	22	47.8	9.0	54.3	56	16 20	17 00	17 44	13 57	14 16	14 28	14 36
22	21	139	05.7	S 14	35.2	228	02.0	12.9	22	38.8	9.1	54.3	54	16 26	17 04	17 46	13 40	14 02	14 18	14 29
23	22	154	05.7	S 14	36.0	242	33.9	13.1	22	29.7	9.2	54.3	52	16 32	17 08	17 48	13 25	13 50	14 09	14 23
24	23	169	05.8	S 14	36.8	257	06.0	13.1	22	20.5	9.3	54.3	50	16 37	17 11	17 49	13 12	13 40	14 00	14 17
1	00	184	05.8	S 14	37.6	271	38.1	13.1	N 22	11.2	9.4	54.3	45	16 49	17 19	17 54	12 45	13 17	13 43	14 04
02	01	199	05.8	S 14	38.4	286	10.2	13.2	22	01.8	9.5	54.3	N 40	16 58	17 26	17 58	12 24	12 59	13 29	13 54
03	02	214	05.8	S 14	39.1	300	42.4	13.3	21	52.3	9.5	54.3	35	17 06	17 32	18 02	12 06	12 44	13 16	13 45
04	03	229	05.8	S 14	39.9	315	14.7	13.3	21	42.8	9.7	54.3	30	17 13	17 38	18 06	11 50	12 31	13 06	13 37
05	04	244	05.8	S 14	40.7	329	47.0	13.4	21	33.1	9.8	54.3	20	17 26	17 48	18 15	11 24	12 08	12 47	13 23
06	05	259	05.8	S 14	41.5	344	19.4	13.5	21	23.3	9.8	54.3	N 10	17 37	17 58	18 23	11 02	11 48	12 31	13 11
07	06	274	05.8	S 14	42.3	358	51.9	13.5	N 21	13.5	10.0	54.3	0	17 47	18 09	18 33	10 41	11 29	12 16	12 59
08	07	289	05.8	S 14	43.1	13	24.4	13.6	21	03.5	10.0	54.3	S 10	17 58	18 20	18 45	10 20	11 11	12 00	12 48
09	08	304	05.9	S 14	43.9	27	57.0	13.6	20	53.5	10.1	54.3	20	18 09	18 32	18 59	09 57	10 51	11 44	12 35
10	09	319	05.9	S 14	44.7	42	29.6	13.7	20	43.4	10.2	54.3	30	18 22	18 47	19 17	09 30	10 27	11 25	12 21
11	10	334	05.9	S 14	45.5	57	02.3	13.7	20	33.2	10.3	54.3	35	18 30	18 57	19 29	09 14	10 14	11 13	12 13
12	11	349	05.9	S 14	46.3	71	35.0	13.8	20	22.9	10.4	54.4	40	18 39	19 08	19 43	08 56	09 58	11 00	12 03
13	12	4	05.9	S 14	47.1	86	07.8	13.9	N 20	12.5	10.5	54.4	45	18 49	19 21	20 01	08 34	09 39	10 45	11 52
14	13	19	05.9	S 14	47.9	100	40.7	13.9	20	02.0	10.6	54.4	S 50	19 01	19 38	20 24	08 06	09 15	10 26	11 38
15	14	34	05.9	S 14	48.7	115	13.6	13.9	19	51.4	10.6	54.4	52	19 07	19 46	20 36	07 52	09 03	10 17	11 32
16	15	49	05.9	S 14	49.4	129	46.5	14.1	19	40.8	10.7	54.4	54	19 14	19 55	20 49	07 35	08 50	10 07	11 25
17	16	64	05.9	S 14	50.2	144	19.6	14.0	19	30.1	10.8	54.4	56	19 21	20 05	21 05	07 16	08 34	09 56	11 17
18	17	79	05.9	S 14	51.0	158	52.6	14.2	19	19.3	10.9	54.4	58	19 29	20 17	21 25	06 52	08 16	09 42	

G.M.T.		ARIES		VENUS -3.4		MARS +0.4		JUPITER -1.2		SATURN +0.1		STARS						
G.H.A.		G.H.A.		Dec.		G.H.A.		Dec.		G.H.A.		Dec.		Name	S.H.A.	Dec.		
d	h																	
MONDAY	300	42 04.6	202 39.8	S 6	31.7	100 47.5	S 22	21.1	201 41.9	S 7	23.8	8 22.0	N 10	38.8	Acamar	315 42.7	S 40 25.3	
	01	57 07.1	217 39.3		32.9	115 48.1		20.7	216 43.9		24.0	23 24.7		38.7	Achernar	335 50.3	S 57 23.3	
	02	72 09.5	232 38.9		34.1	130 48.7		20.3	231 45.9		24.2	38 27.3		38.6	Acrux	173 47.1	S 62 55.7	
	03	87 12.0	247 38.5		35.3	145 49.3		19.8	246 47.8		24.4	53 30.0		38.6	Adhara	255 38.2	S 28 55.4	
	04	102 14.5	262 38.0		36.5	160 49.9		19.4	261 49.8		24.6	68 32.7		38.5	Aldebaran	291 26.9	N 16 27.2	
	05	117 16.9	277 37.6		37.7	175 50.5		19.0	276 51.8		24.8	83 35.3		38.5				
	06	132 19.4	292 37.1	S 6	38.9	190 51.0	S 22	18.6	291 53.8	S 7	25.0	98 38.0	N 10	38.4	Alioth	166 49.7	N 56 07.3	
	07	147 21.9	307 36.7		40.1	205 51.6		18.2	306 55.7		25.2	113 40.6		38.3	Alkaid	153 25.0	N 49 27.7	
	08	162 24.3	322 36.3		41.2	220 52.2		17.7	321 57.7		25.4	128 43.3		38.3	Al Na'ir	28 24.6	S 47 06.6	
	09	177 26.8	337 35.8		42.4	235 52.8		17.3	336 59.7		25.6	143 45.9		38.2	Alnilam	276 19.5	S 1 12.2	
	10	192 29.3	352 35.4		43.6	250 53.4		16.9	352 01.6		25.8	158 48.6		38.1	Alphard	218 28.5	S 8 31.4	
	11	207 31.7	7 34.9		44.8	265 54.0		16.5	7 03.6		26.0	173 51.3		38.1				
	12	222 34.2	22 34.5	S 6	46.0	280 54.6	S 22	16.1	22 05.6	S 7	26.2	188 53.9	N 10	38.0	Alphecca	126 39.2	N 26 48.9	
	13	237 36.6	37 34.1		47.2	295 55.2		15.6	37 07.5		26.4	203 56.6		37.9	Alpheratz	358 17.4	N 28 55.6	
	14	252 39.1	52 33.6		48.4	310 55.7		15.2	52 09.5		26.6	218 59.2		37.9	Altair	62 40.4	N 8 47.3	
	15	267 41.6	67 33.2		49.5	325 56.3		14.8	67 11.5		26.7	234 01.9		37.8	Ankaa	353 47.5	S 42 28.2	
	16	282 44.0	82 32.7		50.7	340 56.9		14.4	82 13.5		26.9	249 04.5		37.7	Antares	113 07.0	S 26 22.1	
	17	297 46.5	97 32.3		51.9	355 57.5		13.9	97 15.4		27.1	264 07.2		37.7				
	18	312 49.0	112 31.9	S 6	53.1	10 58.1	S 22	13.5	112 17.4	S 7	27.3	279 09.8	N 10	37.6	Arcturus	146 26.0	N 19 20.3	
	19	327 51.4	127 31.4		54.3	25 58.7		13.1	127 19.4		27.5	294 12.5		37.6	Atria	108 39.0	S 68 58.7	
	20	342 53.9	142 31.0		55.5	40 59.3		12.7	142 21.3		27.7	309 15.2		37.5	Avior	234 31.6	S 59 24.3	
	21	357 56.4	157 30.5		56.6	55 59.8		12.2	157 23.3		27.9	324 17.8		37.4	Bellatrix	279 07.0	N 6 19.7	
	22	12 58.8	172 30.1		57.8	71 00.4		11.8	172 25.3		28.1	339 20.5		37.4	Betelgeuse	271 36.7	N 7 24.4	
	23	28 01.3	187 29.6	6	59.0	86 01.0		11.4	187 27.3		28.3	354 23.1		37.3				
TUESDAY	400	43 03.7	202 29.2	S 7	00.2	101 01.6	S 22	11.0	202 29.2	S 7	28.5	9 25.8	N 10	37.2	Canopus	264 10.4	S 52 40.3	
	01	58 06.2	217 28.8		01.4	116 02.2		10.5	217 31.2		28.7	24 28.4		37.2	Capella	281 22.7	N 45 58.2	
	02	73 08.7	232 28.3		02.6	131 02.8		10.1	232 33.2		28.9	39 31.1		37.1	Deneb	49 54.1	N 45 10.5	
	03	88 11.1	247 27.9		03.7	146 03.4		09.7	247 35.1		29.1	54 33.8		37.0	Denebola	183 07.3	N 14 44.5	
	04	103 13.6	262 27.4		04.9	161 04.0		09.3	262 37.1		29.3	69 36.4		37.0	Diphda	349 28.5	S 18 09.0	
	05	118 16.1	277 27.0		06.1	176 04.6		08.8	277 39.1		29.5	84 39.1		36.9				
	06	133 18.5	292 26.5	S 7	07.3	191 05.1	S 22	08.4	292 41.0	S 7	29.7	99 41.7	N 10	36.9	Dubhe	194 31.9	N 61 54.7	
	07	148 21.0	307 26.1		08.5	206 05.7		08.0	307 43.0		29.9	114 44.4		36.8	Elmath	278 53.9	N 28 35.2	
	08	163 23.5	322 25.6		09.7	221 06.3		07.5	322 45.0		30.0	129 47.0		36.7	Eltanin	91 01.8	N 51 29.6	
	09	178 25.9	337 25.2		10.8	236 06.9		07.1	337 47.0		30.2	144 49.7		36.7	Enif	34 19.4	N 9 44.2	
	10	193 28.4	352 24.7		12.0	251 07.5		06.7	352 48.9		30.4	159 52.3		36.6	Fomalhaut	15 59.9	S 29 47.0	
	11	208 30.8	7 24.3		13.2	266 08.1		06.3	7 50.9		30.6	174 55.0		36.5				
	12	223 33.3	22 23.9	S 7	14.4	281 08.7	S 22	05.8	22 52.9	S 7	30.8	189 57.7	N 10	36.5	Gacrux	172 38.4	S 56 56.5	
	13	238 35.8	37 23.4		15.6	296 09.3		05.4	37 54.8		31.0	205 00.3		36.4	Gienah	176 26.5	S 17 12.3	
	14	253 38.2	52 23.0		16.7	311 09.8		05.0	52 56.8		31.2	220 03.0		36.3	Hadar	149 35.7	S 60 13.7	
	15	268 40.7	67 22.5		17.9	326 10.4		04.5	67 58.8		31.4	235 05.6		36.3	Hamal	328 37.6	N 23 19.4	
	16	283 43.2	82 22.1		19.1	341 11.0		04.1	83 00.8		31.6	250 08.3		36.2	Kaus Aust.	84 27.6	S 34 24.2	
	17	298 45.6	97 21.6		20.3	356 11.6		03.7	98 02.7		31.8	265 10.9		36.2				
	18	313 48.1	112 21.2	S 7	21.5	11 12.2	S 22	03.2	113 04.7	S 7	32.0	280 13.6	N 10	36.1	Kochab	137 19.2	N 74 16.6	
	19	328 50.6	127 20.7		22.6	26 12.8		02.8	128 06.7		32.2	295 16.2		36.0	Markab	14 11.0	N 15 02.7	
	20	343 53.0	142 20.3		23.8	41 13.4		02.4	143 08.6		32.4	310 18.9		36.0	Menkent	314 49.2	N 3 58.6	
	21	358 55.5	157 19.8		25.0	56 14.0		01.9	158 10.6		32.6	325 21.6		35.9	Menkent	148 46.9	S 36 13.3	
	22	13 58.0	172 19.4		26.2	71 14.6		01.5	173 12.6		32.8	340 24.2		35.8	Miaplacidus	221 47.2	S 69 35.1	
	23	29 00.4	187 18.9		27.3	86 15.1		01.1	188 14.6		33.0	355 26.9		35.8				
WEDNESDAY	500	44 02.9	202 18.5	S 7	28.5	101 15.7	S 22	00.6	203 16.5	S 7	33.2	10 29.5	N 10	35.7	Mirfak	309 27.2	N 49 45.5	
	01	59 05.3	217 18.0		29.7	116 16.3		22 00.2	218 18.5		33.3	25 32.2		35.7	Nunki	76 39.2	S 26 20.3	
	02	74 07.8	232 17.6		30.9	131 16.9		21 59.8	233 20.5		33.5	40 34.8		35.6	Peacock	54 10.8	S 56 50.3	
	03	89 10.3	247 17.1		32.1	146 17.5		59.3	248 22.4		33.7	55 37.5		35.5	Pollux	244 07.7	N 28 06.1	
	04	104 12.7	262 16.7		33.2	161 18.1		58.9	263 24.4		33.9	70 40.2		35.5	Procyon	245 34.0	N 5 18.4	
	05	119 15.2	277 16.2		34.4	176 18.7		58.4	278 26.4		34.1	85 42.8		35.4				
	06	134 17.7	292 15.8	S 7	35.6	191 19.3	S 21	58.0	293 28.4	S 7	34.3	100 45.5	N 10	35.3	Rasalhague	96 37.2	N 12 34.8	
	07	149 20.1	307 15.3		36.8	206 19.9		57.6	308 30.3		34.5	115 48.1		35.3	Regulus	208 18.5	N 12 07.0	
	08	164 22.6	322 14.9		37.9	221 20.4		57.1	323 32.3		34.7	130 50.8		35.2	Rigel	281 43.4	S 8 13.8	
	09	179 25.1	337 14.4		39.1	236 21.0		56.7	338 34.3		34.9	145 53.4		35.1	Rigel Kent.	140 37.6	S 60 42.6	
	10	194 27.5	352 13.9		40.3	251 21.6		56.3	353 36.2		35.1	160 56.1		35.1	Sabik	102 50.6	S 15 41.4	
	11	209 30.0	7 13.5		41.5	266 22.2		55.8	8 38.2		35.3	175 58.7		35.0				
	12	224 32.5	22 13.0	S 7	42.6	281 22.8	S 21	55.4	23 40.2	S 7	35.5	191 01.4	N 10	35.0	Schedar	350 18.0	N 56 22.6	
	13	239 34.9	37 12.6		43.8	296 23.4		54.9	38 42.2		35.7	206 04.0		34.9	Shaula	97 06.9	S 37 05.2	
	14	254 37.4	52 12.1		45.0	311 24.0		54.5	53 44.1		35.9	221 06.7		34.8	Sirius	259 02.6	S 16 40.1	
	15	269 39.8	67 11.7		46.2	326 24.6		54.1	68 46.1		36.0	236 09.4		34.8	Spica	159 06.3	S 11 00.2	
	16	284 42.3	82 11.2		47.3	341 25.2		53.6	83 48.1		36.2	251 12.0		34.7	Suhail	223 16.8	S 43 18.2	
	17	299 44.8	97 10.8		48.5	356 25.7		53.2	98 50.1		36.4	266 14.7		34.6				
	18	314 47.2	112 10.3	S 7	49.7	11 26.3	S 21	52.7	113 52.0	S 7	36.6	281 17.3	N 10	34.6	Vega	81 01.5	N 38 45.4	
	19	329 49.7	127 09.9		50.8	26 26.9		52.3	128 54.0		36.8	296 20.0		34.5	Zuben'ubi	137 42.3	S 15 55.0	
	20	344 52.2	142 09.4		52.0	41 27.5		51.9	143 56.0		37.0	311 22.6		34.5				
	21	359 54.6	157 08.9		53.2	56 28.1		51.4	158 57.9		37.2	326 25.3		34.4		S.H.A.	Mer. Pass.	
	22	14 57.1	172 08.5		54.4	71 28.7		51.0	173 59.9		37.4	341 27.9		34.3	Venus	159 25.5	10 30	
	23	29 59.6	187 08.0		55.5	86 29.3		50.5	189 01.9		37.6	356 30.6		34.3	Mars	57 57.9	17 15	
Mer. Pass. 21 04:3		v -0.4		d 1.2		v 0.6		d 0.4		v 2.0		d 0.2		v 2.7		d 0.1		
														Jupiter		159 25.5		10 29
														Saturn		326 22.1		23 18

G.M.T.	SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise					
	G.H.A.	Dec.	G.H.A.	φ	Dec.	d		H.P.	Naut.		Civil	3	4	5	6	
d h	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	
MONDAY	3 00	184 05.9	S 14 56.5	260 45.6	14.5	N 18 01.3	11.5	54.5	N 72	06 17	07 42	09 15	22 06	24 26	00 26	02 32
	01	199 05.9	57.3	275 19.1	14.5	17 49.8	11.5	54.5	N 70	06 12	07 27	08 45	22 34	24 37	00 37	02 34
	02	214 05.9	58.1	289 52.6	14.6	17 38.3	11.6	54.5	68	06 07	07 15	08 23	22 54	24 46	00 46	02 35
	03	229 05.9	58.9	304 26.2	14.6	17 26.7	11.7	54.5	66	06 03	07 05	08 05	23 10	24 54	00 54	02 36
	04	244 05.9	14 59.7	318 59.8	14.6	17 15.0	11.7	54.5	64	06 00	06 57	07 51	23 23	25 00	01 00	02 37
	05	259 05.9	15 00.5	333 33.4	14.8	17 03.3	11.9	54.6	62	05 56	06 50	07 39	23 34	25 06	01 06	02 37
	06	274 06.0	S 15 01.2	348 07.2	14.7	N 16 51.4	11.9	54.6	60	05 54	06 43	07 29	23 43	25 11	01 11	02 38
	07	289 06.0	02.0	2 40.9	14.8	16 39.5	12.0	54.6	N 58	05 51	06 38	07 21	23 51	25 15	01 15	02 38
	08	304 06.0	02.8	17 14.7	14.8	16 27.5	12.0	54.6	56	05 48	06 33	07 13	23 59	25 18	01 18	02 39
	09	319 06.0	03.6	31 48.5	14.9	16 15.5	12.1	54.6	54	05 46	06 28	07 06	24 05	00 05	01 22	02 39
	10	334 06.0	04.4	46 22.4	14.9	16 03.4	12.2	54.6	52	05 44	06 24	07 00	24 10	00 10	01 25	02 40
	11	349 05.9	05.1	60 56.3	15.0	15 51.2	12.3	54.7	50	05 42	06 20	06 54	24 16	00 16	01 27	02 40
TUESDAY	12	4 05.9	S 15 05.9	75 30.3	15.0	N 15 38.9	12.3	54.7	45	05 37	06 11	06 42	24 27	00 27	01 33	02 41
	13	19 05.9	06.7	90 04.3	15.0	15 26.6	12.4	54.7	N 40	05 32	06 04	06 32	24 36	00 36	01 38	02 41
	14	34 05.9	07.5	104 38.3	15.1	15 14.2	12.5	54.7	35	05 27	05 57	06 24	24 43	00 43	01 42	02 42
	15	49 05.9	08.3	119 12.4	15.1	15 01.7	12.5	54.7	30	05 23	05 51	06 16	24 50	00 50	01 46	02 43
	16	64 05.9	09.0	133 46.5	15.1	14 49.2	12.6	54.7	20	05 14	05 40	06 03	00 11	01 02	01 52	02 43
	17	79 05.9	09.8	148 20.6	15.2	14 36.6	12.7	54.8	N 10	05 04	05 29	05 51	00 25	01 12	01 58	02 44
	18	94 05.9	S 15 10.6	162 54.8	15.2	N 14 23.9	12.7	54.8	0	04 54	05 18	05 40	00 38	01 21	02 03	02 45
	19	109 05.9	11.4	177 29.0	15.3	14 11.2	12.8	54.8	S 10	04 42	05 07	05 29	00 52	01 31	02 08	02 46
	20	124 05.9	12.2	192 03.3	15.3	13 58.4	12.9	54.8	20	04 27	04 54	05 17	01 06	01 41	02 14	02 46
	21	139 05.9	12.9	206 37.6	15.3	13 45.5	12.9	54.8	30	04 08	04 38	05 03	01 22	01 52	02 20	02 47
	22	154 05.9	13.7	221 11.9	15.3	13 32.6	13.0	54.8	35	03 55	04 28	04 55	01 32	01 59	02 24	02 48
	23	169 05.9	14.5	235 46.2	15.4	13 19.6	13.0	54.9	40	03 41	04 17	04 46	01 43	02 06	02 28	02 48
WEDNESDAY	23	169 05.9	14.5	235 46.2	15.4	13 19.6	13.0	54.9	45	03 22	04 03	04 35	01 55	02 15	02 32	02 49
	4 00	184 05.9	S 15 15.3	250 20.6	15.4	N 13 06.6	13.1	54.9	S 50	02 58	03 45	04 22	02 10	02 25	02 38	02 50
	01	199 05.9	16.0	264 55.0	15.4	12 53.5	13.2	54.9	52	02 46	03 37	04 16	02 17	02 30	02 40	02 50
	02	214 05.9	16.8	279 29.4	15.4	12 40.3	13.2	54.9	54	02 32	03 27	04 09	02 25	02 35	02 43	02 51
	03	229 05.9	17.6	294 03.8	15.5	12 27.1	13.3	54.9	56	02 15	03 16	04 01	02 34	02 41	02 46	02 51
	04	244 05.9	18.4	308 38.3	15.5	12 13.8	13.3	55.0	58	01 54	03 04	03 53	02 44	02 47	02 50	02 52
	05	259 05.9	19.1	323 12.8	15.5	12 00.5	13.4	55.0	S 60	01 25	02 49	03 43	02 55	02 55	02 54	02 52
	06	274 05.9	S 15 19.9	337 47.3	15.6	N 11 47.1	13.5	55.0								
	07	289 05.9	20.7	352 21.9	15.5	11 33.6	13.5	55.0	Lat.	Sun-set	Twilight	Moonset				
	08	304 05.8	21.4	6 56.4	15.6	11 20.1	13.5	55.1			Civil	Naut.	3	4	5	6
	09	319 05.8	22.2	21 31.0	15.6	11 06.6	13.5	55.1	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$	$^{\circ}$
	10	334 05.8	23.0	36 05.6	15.6	10 52.9	13.6	55.1	N 72	14 11	15 44	17 08	16 39	15 49	15 12	14 38
11	349 05.8	23.8	50 40.2	15.7	10 39.3	13.8	55.1	N 70	14 41	15 59	17 14	16 09	15 34	15 07	14 41	
THURSDAY	12	4 05.8	S 15 24.5	65 14.9	15.6	N 10 25.5	13.7	55.1	68	15 04	16 11	17 19	15 47	15 23	15 03	14 43
	13	19 05.8	25.3	79 49.5	15.7	10 11.8	13.9	55.2	66	15 21	16 21	17 23	15 30	15 13	14 59	14 45
	14	34 05.8	26.1	94 24.2	15.7	9 57.9	13.9	55.2	64	15 35	16 29	17 26	15 16	15 05	14 56	14 47
	15	49 05.8	26.8	108 58.9	15.7	9 44.0	13.9	55.2	62	15 47	16 36	17 30	15 03	14 58	14 53	14 49
	16	64 05.8	27.6	123 33.6	15.7	9 30.1	14.0	55.2	60	15 57	16 43	17 33	14 53	14 52	14 51	14 50
	17	79 05.8	28.4	138 08.3	15.7	9 16.1	14.0	55.3	N 58	16 06	16 49	17 35	14 44	14 47	14 49	14 51
	18	94 05.7	S 15 29.1	152 43.0	15.7	N 9 02.1	14.1	55.3	56	16 14	16 54	17 38	14 36	14 42	14 47	14 52
	19	109 05.7	29.9	167 17.7	15.8	8 48.0	14.1	55.3	54	16 21	16 58	17 40	14 29	14 38	14 46	14 53
	20	124 05.7	30.7	181 52.5	15.7	8 33.9	14.2	55.3	52	16 27	17 03	17 43	14 23	14 34	14 44	14 54
	21	139 05.7	31.5	196 27.2	15.8	8 19.7	14.2	55.4	50	16 32	17 07	17 45	14 17	14 30	14 43	14 55
	22	154 05.7	32.2	211 02.0	15.7	8 05.5	14.2	55.4	45	16 45	17 15	17 50	14 04	14 23	14 40	14 56
	23	169 05.7	33.0	225 36.7	15.8	7 51.3	14.3	55.4	N 40	16 55	17 23	17 55	13 54	14 16	14 37	14 58
FRIDAY	00	199 05.6	34.5	254 46.2	15.8	7 22.6	14.4	55.5	35	17 03	17 30	18 00	13 45	14 10	14 35	14 59
	01	214 05.6	35.3	269 21.0	15.8	7 08.2	14.4	55.5	30	17 11	17 36	18 04	13 37	14 05	14 33	15 00
	02	229 05.6	36.0	283 55.8	15.7	6 53.8	14.5	55.5	20	17 24	17 47	18 13	13 23	13 57	14 29	15 02
	03	244 05.6	36.8	298 30.5	15.8	6 39.3	14.5	55.5	N 10	17 36	17 58	18 23	13 11	13 49	14 26	15 04
	04	259 05.6	37.6	313 05.3	15.8	6 24.8	14.5	55.6	0	17 47	18 09	18 33	12 59	13 41	14 23	15 05
	05	274 05.6	S 15 38.3	327 40.1	15.7	N 6 10.3	14.6	55.6	S 10	17 58	18 20	18 46	12 48	13 34	14 20	15 07
	06	289 05.5	39.1	342 14.8	15.8	5 55.7	14.7	55.6	20	18 11	18 34	19 01	12 35	13 26	14 17	15 08
	07	304 05.5	39.9	356 49.6	15.7	5 41.0	14.6	55.6	30	18 24	18 50	19 20	12 21	13 17	14 13	15 10
	08	319 05.5	40.6	11 24.3	15.8	5 26.4	14.7	55.7	35	18 33	19 00	19 33	12 13	13 12	14 11	15 11
	09	334 05.5	41.4	25 59.1	15.7	5 11.7	14.8	55.7	40	18 42	19 12	19 47	12 03	13 06	14 08	15 12
	10	349 05.5	42.1	40 33.8	15.7	4 56.9	14.7	55.7	45	18 53	19 26	20 06	11 52	12 59	14 06	15 14
	11	4 05.5	S 15 42.9	55 08.5	15.7	N 4 42.2	14.9	55.7	S 50	19 06	19 43	20 31	11 38	12 50	14 02	15 16
12	19 05.4	43.7	69 43.2	15.7	4 27.3	14.8	55.8	52	19 13	19 52	20 43	11 32	12 46	14 00	15 16	
13	34 05.4	44.4	84 17.9	15.7	4 12.5	14.9	55.8	54	19 20							

	ARIES	VENUS -3.4		MARS +0.5		JUPITER -1.2		SATURN +0.1		STARS		
G.M.T.	G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	°	°	°	°	°	°	°	°	°		°	°
6 00	45 02.0	202 07.6	S 7 56.7	101 29.9	S 21 50.1	204 03.9	S 7 37.8	11 33.3	N 10 34.2	Acamar	315 42.7	S 40 25.3
	60 04.5	217 07.1	57.9	116 30.5	49.6	219 05.8	38.0	26 35.9	34.1	Achernar	335 50.3	S 57 23.3
	02 75 07.0	232 06.7	7 59.0	131 31.1	49.2	234 07.8	38.2	41 38.6	34.1	Acrux	173 47.1	S 62 55.7
	03 90 09.4	247 06.2	8 00.2	146 31.6	48.8	249 09.8	38.4	56 41.2	34.0	Adhara	255 38.2	S 28 55.4
	04 105 11.9	262 05.7	01.4	161 32.2	48.3	264 11.7	38.6	71 43.9	34.0	Aldebaran	291 26.9	N 16 27.2
05 120 14.3	277 05.3	02.5	176 32.8	47.9	279 13.7	38.7	86 46.5	33.9				
06 135 16.8	292 04.8	S 8 03.7	191 33.4	S 21 47.4	294 15.7	S 7 38.9	101 49.2	N 10 33.8	Alioth	166 49.6	N 56 07.3	
07 150 19.3	307 04.4	04.9	206 34.0	47.0	309 17.7	39.1	116 51.8	33.8	Alkaid	153 25.0	N 49 27.7	
T H U R S D A Y	08 165 21.7	322 03.9	06.0	221 34.6	46.5	324 19.6	39.3	131 54.5	33.7	Al Na'ir	28 24.6	S 47 06.7
	09 180 24.2	337 03.4	07.2	236 35.2	46.1	339 21.6	39.5	146 57.2	33.6	Alnilam	276 19.5	S 1 12.9
	10 195 26.7	352 03.0	08.4	251 35.8	45.6	354 23.6	39.7	161 59.8	33.6	Alphard	218 28.4	S 8 31.4
	11 210 29.1	7 02.5	09.6	266 36.4	45.2	9 25.6	39.9	177 02.5	33.5			
	12 225 31.6	22 02.0	S 8 10.7	281 37.0	S 21 44.7	24 27.5	S 7 40.1	192 05.1	N 10 33.5	Alphecca	126 39.2	N 26 48.9
13 240 34.1	37 01.6	11.9	296 37.5	44.3	39 29.5	40.3	207 07.8	33.4	Alpheratz	358 17.4	N 28 55.6	
14 255 36.5	52 01.1	13.1	311 38.1	43.8	54 31.5	40.5	222 10.4	33.3	Altair	62 40.4	N 8 47.3	
15 270 39.0	67 00.7	14.2	326 38.7	43.4	69 33.5	40.7	237 13.1	33.3	Ankaa	353 47.5	S 42 28.2	
16 285 41.4	82 00.2	15.4	341 39.3	42.9	84 35.4	40.9	252 15.7	33.2	Antares	113 07.0	S 26 22.1	
17 300 43.9	96 59.7	16.5	356 39.9	42.5	99 37.4	41.1	267 18.4	33.1				
18 315 46.4	111 59.3	S 8 17.7	11 40.5	S 21 42.0	114 39.4	S 7 41.3	282 21.0	N 10 33.1	Arcturus	146 26.0	N 19 20.3	
19 330 48.8	126 58.8	18.9	26 41.1	41.6	129 41.3	41.4	297 23.7	33.0	Atria	108 39.0	S 68 58.7	
20 345 51.3	141 58.3	20.0	41 41.7	41.1	144 43.3	41.6	312 26.4	33.0	Avior	234 31.6	S 59 24.3	
21 0 53.8	156 57.9	21.2	56 42.3	40.7	159 45.3	41.8	327 29.0	32.9	Bellatrix	279 07.0	N 6 19.6	
22 15 56.2	171 57.4	22.4	71 42.9	40.2	174 47.3	42.0	342 31.7	32.8	Betelgeuse	271 36.6	N 7 24.4	
23 30 58.7	186 56.9	23.5	86 43.4	39.8	189 49.2	42.2	357 34.3	32.8				
7 00	46 01.2	201 56.5	S 8 24.7	101 44.0	S 21 39.3	204 51.2	S 7 42.4	12 37.0	N 10 32.7	Canopus	264 10.4	S 52 40.3
	01 61 03.6	216 56.0	25.9	116 44.6	38.9	219 53.2	42.6	27 39.6	32.6	Capella	281 22.7	N 45 58.2
	02 76 06.1	231 55.5	27.0	131 45.2	38.4	234 55.2	42.8	42 42.3	32.6	Deneb	49 54.1	N 45 10.5
	03 91 08.5	246 55.1	28.2	146 45.8	38.0	249 57.1	43.0	57 44.9	32.5	Denebola	183 07.3	N 14 44.5
	04 106 11.0	261 54.6	29.3	161 46.4	37.5	264 59.1	43.2	72 47.6	32.5	Diphda	349 28.5	S 18 09.0
05 121 13.5	276 54.1	30.5	176 47.0	37.1	280 01.1	43.4	87 50.2	32.4				
06 136 15.9	291 53.7	S 8 31.7	191 47.6	S 21 36.6	295 03.1	S 7 43.6	102 52.9	N 10 32.3	Dubhe	194 31.8	N 61 54.7	
07 151 18.4	306 53.2	32.8	206 48.2	36.2	310 05.0	43.8	117 55.5	32.3	El Nath	278 53.9	N 28 35.2	
08 166 20.9	321 52.7	34.0	221 48.8	35.7	325 07.0	43.9	132 58.2	32.2	Eltanin	91 01.8	N 51 29.6	
F R I D A Y	09 181 23.3	336 52.3	35.2	236 49.4	35.2	340 09.0	44.1	148 00.9	32.1	Enif	34 19.4	N 9 44.2
	10 196 25.8	351 51.8	36.3	251 49.9	34.8	355 10.9	44.3	163 03.5	32.1	Fomalhaut	15 59.9	S 29 47.0
	11 211 28.3	6 51.3	37.5	266 50.5	34.3	10 12.9	44.5	178 06.2	32.0			
	12 226 30.7	21 50.9	S 8 38.6	281 51.1	S 21 33.9	25 14.9	S 7 44.7	193 08.8	N 10 32.0	Gacrux	172 38.4	S 56 56.5
	13 241 33.2	36 50.4	39.8	296 51.7	33.4	40 16.9	44.9	208 11.5	31.9	Gienah	176 26.5	S 17 22.3
14 256 35.7	51 49.9	41.0	311 52.3	33.0	55 18.8	45.1	223 14.1	31.8	Hadar	149 35.6	S 60 13.6	
15 271 38.1	66 49.5	42.1	326 52.9	32.5	70 20.8	45.3	238 16.8	31.8	Hamal	328 37.6	N 23 19.4	
16 286 40.6	81 49.0	43.3	341 53.5	32.1	85 22.8	45.5	253 19.4	31.7	Kaus Aust.	84 27.6	S 34 24.2	
17 301 43.0	96 48.5	44.4	356 54.1	31.6	100 24.8	45.7	268 22.1	31.6				
18 316 45.5	111 48.0	S 8 45.6	11 54.7	S 21 31.1	115 26.7	S 7 45.9	283 24.7	N 10 31.6	Kochab	137 19.2	N 74 16.6	
19 331 48.0	126 47.4	46.7	26 55.3	30.7	130 28.7	46.0	298 27.4	31.5	Markab	14 11.0	N 15 02.7	
20 346 50.4	141 47.1	47.9	41 55.9	30.2	145 30.7	46.2	313 30.0	31.5	Menkar	314 49.1	N 3 58.6	
21 1 52.9	156 46.6	49.1	56 56.4	29.8	160 32.7	46.4	328 32.7	31.4	Menkent	148 46.9	S 36 13.3	
22 16 55.4	171 46.2	50.2	71 57.0	29.3	175 34.6	46.6	343 35.3	31.3	Miaplacidus	221 47.1	S 69 35.1	
23 31 57.8	186 45.7	51.4	86 57.6	28.8	190 36.6	46.8	358 38.0	31.3				
8 00	47 00.3	201 45.2	S 8 52.5	101 58.2	S 21 28.4	205 38.6	S 7 47.0	13 40.7	N 10 31.2	Mirfak	309 27.2	N 49 45.5
	01 62 02.8	216 44.7	53.7	116 58.8	27.9	220 40.6	47.2	28 43.3	31.2	Nunki	76 39.2	S 26 20.3
	02 77 05.2	231 44.3	54.8	131 59.4	27.5	235 42.5	47.4	43 46.0	31.1	Peacock	54 10.9	S 56 50.3
	03 92 07.7	246 43.8	56.0	147 00.0	27.0	250 44.5	47.6	58 48.6	31.0	Pollux	244 07.7	N 28 06.1
	04 107 10.2	261 43.3	57.2	162 00.6	26.5	265 46.5	47.8	73 51.3	31.0	Procyon	245 34.0	N 5 18.4
05 122 12.6	276 42.8	58.3	177 01.2	26.1	280 48.5	48.0	88 53.9	30.9				
06 137 15.1	291 42.4	S 8 59.5	192 01.8	S 21 25.6	295 50.4	S 7 48.1	103 56.6	N 10 30.8	Rasalhague	96 37.2	N 12 34.8	
07 152 17.5	306 41.9	9 00.6	207 02.4	25.2	310 52.4	48.3	118 59.2	30.8	Regulus	208 18.5	N 12 07.0	
08 167 20.0	321 41.4	01.8	222 03.0	24.7	325 54.4	48.5	134 01.9	30.7	Rigel	281 43.4	S 8 13.8	
S A T U R D A Y	09 182 22.5	336 40.9	02.9	237 03.6	24.2	340 56.4	48.7	149 04.5	30.7	Rigel Kent.	140 37.6	S 60 42.6
	10 197 24.9	351 40.5	04.1	252 04.1	23.8	355 58.3	48.9	164 07.2	30.6	Sabik	102 50.6	S 15 41.4
	11 212 27.4	6 40.0	05.2	267 04.7	23.3	11 00.3	49.1	179 09.8	30.5			
	12 227 29.9	21 39.5	S 9 06.4	282 05.3	S 21 22.8	26 02.3	S 7 49.3	194 12.5	N 10 30.5	Schedar	350 18.0	N 56 22.6
	13 242 32.3	36 39.0	07.5	297 05.9	22.4	41 04.3	49.5	209 15.1	30.4	Shaula	97 07.0	S 37 05.2
14 257 34.8	51 38.5	08.7	312 06.5	21.9	56 06.2	49.7	224 17.8	30.4	Sirius	259 02.5	S 16 40.1	
15 272 37.3	66 38.1	09.8	327 07.1	21.4	71 08.2	49.9	239 20.4	30.3	Spica	159 06.3	S 11 00.2	
16 287 39.7	81 37.6	11.0	342 07.7	21.0	86 10.2	50.1	254 23.1	30.2	Suhail	223 16.8	S 43 18.2	
17 302 42.2	96 37.1	12.1	357 08.3	20.5	101 12.2	50.2	269 25.8	30.2				
18 317 44.7	111 36.6	S 9 13.3	12 08.9	S 21 20.0	116 14.1	S 7 50.4	284 28.4	N 10 30.1	Vega	81 01.5	N 38 45.4	
19 332 47.1	126 36.1	14.4	27 09.5	19.6	131 16.1	50.6	299 31.1	30.0	Zuben'ubi	137 42.2	S 15 55.0	
20 347 49.6	141 35.7	15.6	42 10.1	19.1	146 18.1	50.8	314 33.7	30.0				
21 2 52.0	156 35.2	16.7	57 10.7	18.6	161 20.1	51.0	329 36.4	29.9		S.H.A.	Mer. Pass.	
22 17 54.5	171 34.7	17.9	72 11.3	18.2	176 22.1	51.2	344 39.0	29.9	Venus	155 55.3	10 33	
23 32 57.0	186 34.2	19.0	87 11.8	17.7	191 24.0	51.4	359 41.7	29.8	Mars	55 42.8	17 12	
									Jupiter	158 50.0	10 19	
									Saturn	326 35.8	23 05	
Mer. Pass. 20 52.5	v -0.5	d 1.2		v 0.6	d 0.5	v 2.0	d 0.2	v 2.7	d 0.1			

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise									
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	6	7	8	9					
d	h																				
6	00	184	05-2	S 15	52-0	230	04-1	15-4	N	1 42-4	15-1	56-1	N 72	06 29	07 56	09 36	02 32	04 42	07 10		
	01	199	05-2		52-7	244	38-5	15-5		1 27-3	15-2	56-1	N 70	06 22	07 39	09 01	02 34	04 33	06 46	09 46	
	02	214	05-2		53-5	259	13-0	15-5		1 12-1	15-2	56-2	68	06 17	07 26	08 36	02 35	04 26	06 28	08 54	
	03	229	05-1		54-2	273	47-5	15-4		0 56-9	15-2	56-2	66	06 12	07 15	08 16	02 36	04 20	06 13	08 22	
	04	244	05-1		55-0	288	21-9	15-4		0 41-7	15-2	56-2	64	06 07	07 05	08 01	02 37	04 16	06 01	07 59	
	05	259	05-1		55-7	302	56-3	15-3		0 26-5	15-3	56-2	62	06 04	06 57	07 48	02 37	04 11	05 51	07 41	
	06												60	06 00	06 50	07 37	02 38	04 08	05 43	07 26	
	07	274	05-1	S 15	56-5	317	30-6	15-3	N	0 11-2	15-3	56-3	N 58	05 57	06 44	07 28	02 38	04 05	05 36	07 13	
	08	289	05-0		57-2	332	04-9	15-3	S	0 04-1	15-3	56-3	56	05 54	06 38	07 19	02 39	04 02	05 29	07 02	
	09	304	05-0		58-0	346	39-2	15-3		0 19-4	15-3	56-3	54	05 51	06 34	07 12	02 39	03 59	05 23	06 53	
THURSDAY	10	319	05-0		58-7		1 13-5	15-2		0 34-7	15-3	56-4	52	05 48	06 29	07 05	02 40	03 57	05 18	06 44	
	11	334	05-0		59-5	15	47-7	15-2		0 50-0	15-4	56-4	50	05 46	06 25	06 59	02 40	03 55	05 13	06 37	
	12	349	04-9	16	00-2	30	21-9	15-1		1 05-4	15-3	56-4	45	05 40	06 15	06 46	02 41	03 50	05 03	06 21	
	13		4 04-9	S 16	01-0	44	56-0	15-1	S	1 20-7	15-4	56-5	N 40	05 35	06 07	06 36	02 41	03 47	04 55	06 07	
	14		19 04-9		01-7	59	30-1	15-1		1 36-1	15-4	56-5	35	05 30	06 00	06 26	02 42	03 44	04 48	05 56	
	15		34 04-8		02-5	74	04-2	15-0		1 51-5	15-3	56-5	30	05 25	05 53	06 18	02 43	03 41	04 42	05 47	
	16		49 04-8		03-2	88	38-2	14-9		2 06-8	15-4	56-6	20	05 15	05 41	06 04	02 43	03 36	04 31	05 30	
	17		64 04-8		04-0	103	12-1	15-0		2 22-2	15-5	56-6	N 10	05 05	05 30	05 52	02 44	03 32	04 22	05 16	
	18		79 04-8		04-7	117	46-1	14-9		2 37-7	15-4	56-6	0	04 54	05 18	05 40	02 45	03 28	04 13	05 03	
	19		94 04-7	S 16	05-5	132	20-0	14-8	S	2 53-1	15-4	56-6	S 10	04 41	05 06	05 28	02 46	03 24	04 05	04 49	
FRIDAY	20	109	04-7		06-2	146	53-8	14-8		3 08-5	15-4	56-7	20	04 25	04 53	05 16	02 46	03 20	03 56	04 35	
	21	124	04-7		07-0	161	27-6	14-7		3 23-9	15-4	56-7	30	04 05	04 35	05 01	02 47	03 15	03 46	04 20	
	22	139	04-6		07-7	176	01-3	14-7		3 39-3	15-5	56-7	35	03 52	04 25	04 52	02 48	03 13	03 40	04 10	
	23	154	04-6		08-4	190	35-0	14-6		3 54-8	15-4	56-8	40	03 37	04 13	04 43	02 48	03 10	03 33	04 00	
		169	04-6		09-2	205	08-6	14-6		4 10-2	15-4	56-8	45	03 17	03 58	04 31	02 49	03 06	03 25	03 48	
	00	184	04-5	S 16	09-9	219	42-2	14-5	S	4 25-6	15-5	56-8	S 50	02 51	03 40	04 17	02 50	03 02	03 16	03 33	
	01	199	04-5		10-7	234	15-7	14-5		4 41-1	15-4	56-9	52	02 38	03 31	04 10	02 50	03 01	03 12	03 27	
	02	214	04-5		11-4	248	49-2	14-4		4 56-5	15-4	56-9	54	02 23	03 21	04 03	02 51	02 59	03 08	03 19	
	03	229	04-4		12-2	263	22-6	14-4		5 11-9	15-5	56-9	56	02 04	03 09	03 55	02 51	02 56	03 02	03 11	
	04	244	04-4		12-9	277	56-0	14-2		5 27-4	15-4	57-0	58	01 41	02 55	03 45	02 52	02 54	02 57	03 01	
SATURDAY	05	259	04-4		13-6	292	29-2	14-3		5 42-8	15-4	57-0	S 60	01 07	02 39	03 35	02 52	02 51	02 51	02 51	
	06	274	04-3	S 16	14-4	307	02-5	14-1	S	5 58-2	15-4	57-0									
	07	289	04-3		15-1	321	35-6	14-1		6 13-6	15-4	57-1									
	08	304	04-3		15-9	336	08-7	14-1		6 29-0	15-4	57-1									
	09	319	04-2		16-6	350	41-8	13-9		6 44-4	15-4	57-1									
	10	334	04-2		17-3	5 14-7	13-9		6 59-8	15-4	57-2										
	11	349	04-2		18-1	19 47-6	13-9		7 15-2	15-3	57-2	N 72	13 50	15 30	16 57	14 38	14 02	13 11			
	12		4 04-1	S 16	18-8	34	20-5	13-7	S	7 30-5	15-3	57-2	N 70	14 26	15 47	17 04	14 41	14 13	13 37	12 22	
	13	19	04-1		19-5	48	53-2	13-7		7 45-8	15-4	57-3	68	14 51	16 00	17 10	14 43	14 23	13 57	13 15	
	14	34	04-1		20-3	63	25-9	13-6		8 01-2	15-3	57-3	66	15 10	16 12	17 15	14 45	14 31	14 13	13 48	
SUNDAY	15	49	04-0		21-0	77	58-5	13-6		8 16-5	15-3	57-3	64	15 26	16 21	17 19	14 47	14 38	14 27	14 13	
	16	64	04-0		21-8	92	31-1	13-4		8 31-8	15-2	57-4	62	15 39	16 29	17 23	14 49	14 44	14 38	14 32	
	17	79	03-9		22-5	107	03-5	13-4		8 47-0	15-3	57-4	60	15 50	16 36	17 26	14 50	14 49	14 48	14 48	
	18	94	03-9	S 16	23-2	121	35-9	13-3	S	9 02-3	15-2	57-4	N 58	15 59	16 42	17 30	14 51	14 53	14 57	15 02	
	19	109	03-9		24-0	136	08-2	13-3		9 17-5	15-2	57-5	56	16 07	16 48	17 33	14 52	14 57	15 04	15 14	
	20	124	03-8		24-7	150	40-5	13-1		9 32-7	15-1	57-5	54	16 15	16 53	17 36	14 53	15 01	15 11	15 24	
	21	139	03-8		25-4	165	12-6	13-1		9 47-8	15-2	57-5	52	16 22	16 58	17 38	14 54	15 04	15 17	15 33	
	22	154	03-7		26-2	179	44-7	13-0		10 03-0	15-1	57-5	50	16 28	17 02	17 41	14 55	15 07	15 22	15 42	
	23	169	03-7		26-9	194	16-7	12-9		10 18-1	15-1	57-6	45	16 41	17 12	17 47	14 56	15 14	15 34	15 59	
	MONDAY	00	184	03-7	S 16	27-6	208	48-6	12-8	S	10 33-2	15-0	57-6	N 40	16 52	17 20	17 52	14 58	15 20	15 44	16 14
01		199	03-6		28-3	223	20-4	12-7		10 48-2	15-0	57-6	35	17 01	17 27	17 57	14 59	15 25	15 53	16 26	
02		214	03-6		29-1	237	52-1	12-6		11 03-2	15-0	57-7	30	17 09	17 34	18 02	15 00	15 29	16 01	16 37	
03		229	03-5		29-8	252	23-7	12-6		11 18-2	15-0	57-7	20	17 23	17 46	18 12	15 02	15 36	16 14	16 56	
04		244	03-5		30-5	266	55-3	12-4		11 33-2	14-9	57-7	N 10	17 35	17 57	18 22	15 04	15 43	16 25	17 12	
05		259	03-4		31-3	281	26-7	12-4		11 48-1	14-8	57-8	0	17 47	18 09	18 34	15 05	15 49	16 36	17 28	
06		274	03-4	S 16	32-0	295	58-1	12-3	S	12 02-9	14-9	57-8	S 10	17 59	18 21	18 47	15 07	15 55	16 47	17 43	
07		289	03-4		32-7	310	29-4	12-1		12 17-8	14-8	57-8	20	18 12	18 35	19 03	15 08	16 02	16 59	18 00	
08		304	03-3		33-5	325	00-5	12-1		12 32-6	14-7	57-9	30	18 27	18 52	19 23	15 10	16 10	17 12	18 19	
09		319	03-3		34-2	339	31-6	12-0		12 47-3	14-7	57-9	35	18 36	19 03	19 36	15 11	16 14	17 20	18 30	
TUESDAY	10	334	03-2		34-9	354	02-6	11-9		13 02-0	14-6	57-9	40	18 46	19 15	19 52	15 12	16 19	17 29	18 43	
	11	349	03-2		35-6	8	33-5	11-8		13 16-6	14-6	58-0	45	18 57	19 30	20 11	15 14	16 25	17 40	18 58	
	12		4 03-1	S 16	36-4	23	04-3	11-7	S	13 31-2	14-6	58-0	S 50	19 12	19 49	20 38	15 16	16 32	17 52	19 17	
	13	19	03-1		37-1	37	35-0	11-6		13 45-8	14-5	58-0	52	19 18	19 58	20 51	15 16	16 35	17 58	19 26	
	14	34	03-0		37-8	52	05-6	11-5		14 00-3	14-4	58-0	54	19 26	20 09	21 07	15 17	16 39	18 05	19 37	
	15	49	03-0		38-5	66	36-1	11-3		14 14-7	14-4	58-1	56	19 34	20 20	21 26	15 18	16 43	18 13	19 48	
	16	64	03-0		39-3	81	06-4	11-3		14 29-1	14-3	58-1	58	19 44	20 34	21 51	15 19	16 47	18 21	20 01	
	17	79	02-9		40-0	95	36-7	11-2		14 43-4	14-3	58-1	S 60	19 54	20 51	22 27	15 20	16 52	18 31	20 17	
	18	94	02-9	S 16	40-7	110	06-9	11-1	S	14 57-7	14-2	58-2									
	19	109	02-8		41-4	124	37-0	10-9		15 11-9	14-1	58-2									
WEDNESDAY	20	124	02-8		42-1	139	06-9	10-9		15 26-0	14-1</										

		ARIES		VENUS -3.4		MARS +0.5		JUPITER -1.2		SATURN +0.1		STARS			
G.M.T.		G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d	h	°	'	°	'	°	'	°	'	°	'	°	'	°	'
SUNDAY	9 00	47 59.4	201 33.7	S 9 20.2	102 12.4	S 21 17.2	206 26.0	S 7 51.6	14 44.3	N 10 29.7	Acamar	315 42.7	S 40 25.3		
	01	63 01.9	216 33.3	21.3	117 13.0	16.8	221 28.0	51.8	29 47.0	29.7	Acchernar	335 50.3	S 57 23.4		
	02	78 04.4	231 32.8	22.5	132 13.6	16.3	236 30.0	52.0	44 49.6	29.6	Acruz	173 47.1	S 62 55.7		
	03	93 06.8	246 32.3	.. 23.6	147 14.2	.. 15.8	251 31.9	.. 52.1	59 52.3	.. 29.6	Adhara	255 38.2	S 28 55.5		
	04	108 09.3	261 31.8	24.8	162 14.8	15.3	266 33.9	52.3	74 54.9	29.5	Aldebaran	291 26.9	N 16 27.2		
	05	123 11.8	276 31.3	25.9	177 15.4	14.9	281 35.9	52.5	89 57.6	29.4					
	06	138 14.2	291 30.8	S 9 27.0	192 16.0	S 21 14.4	296 37.9	S 7 52.7	105 00.2	N 10 29.4	Alioth	166 49.6	N 56 07.2		
	07	153 16.7	306 30.4	28.2	207 16.6	13.9	311 39.8	52.9	120 02.9	29.3	Alkaid	153 25.0	N 49 27.7		
	08	168 19.2	321 29.9	29.3	222 17.2	13.5	326 41.8	53.1	135 05.5	29.3	Al Na'ir	28 24.6	S 47 06.6		
	09	183 21.6	336 29.4	.. 30.5	237 17.8	.. 13.0	341 43.8	.. 53.3	150 08.2	.. 29.2	Anilam	276 19.5	S 1 12.2		
	10	198 24.1	351 28.9	31.6	252 18.4	12.5	356 45.8	53.5	165 10.8	29.1	Alphard	218 28.4	S 8 31.4		
	11	213 26.5	6 28.4	32.8	267 19.0	12.0	11 47.7	53.7	180 13.5	29.1					
	12	228 29.0	21 27.9	S 9 33.9	282 19.6	S 21 11.6	26 49.7	S 7 53.9	195 16.1	N 10 29.0	Alphecca	126 39.2	N 26 48.9		
	13	243 31.5	36 27.4	35.1	297 20.2	11.1	41 51.7	54.0	210 18.8	28.9	Alpheratz	358 17.4	N 28 55.6		
	14	258 33.9	51 27.0	36.2	312 20.8	10.6	56 53.7	54.2	225 21.4	28.9	Altair	62 40.4	N 8 47.3		
	15	273 36.4	66 26.5	.. 37.3	327 21.3	.. 10.2	71 55.6	.. 54.4	240 24.1	.. 28.8	Ankaa	353 47.5	S 42 28.2		
	16	288 38.9	81 26.0	38.5	342 21.9	09.7	86 57.6	54.6	255 26.7	28.8	Antares	113 07.0	S 26 22.1		
17	303 41.3	96 25.5	39.6	357 22.5	09.2	101 59.6	54.8	270 29.4	28.7						
18	318 43.8	111 25.0	S 9 40.8	12 23.1	S 21 08.7	117 01.6	S 7 55.0	285 32.0	N 10 28.6	Arcturus	146 26.0	N 19 20.3			
19	333 46.3	126 24.5	41.9	27 23.7	08.3	132 03.6	55.2	300 34.7	28.6	Atria	108 39.0	S 68 58.7			
20	348 48.7	141 24.0	43.1	42 24.3	07.8	147 05.5	55.4	315 37.3	28.5	Atrior	234 31.5	S 59 24.3			
21	3 51.2	156 23.5	.. 44.2	57 24.9	.. 07.3	162 07.5	.. 55.6	330 40.0	.. 28.5	Bellatrix	279 07.0	N 6 19.6			
22	18 53.7	171 23.1	45.3	72 25.5	06.8	177 09.5	55.7	345 42.6	28.4	Betelgeuse	271 36.6	N 7 24.4			
23	33 56.1	186 22.6	46.5	87 26.1	06.3	192 11.5	55.9	0 45.3	28.3						
MONDAY	00	48 58.6	201 22.1	S 9 47.6	102 26.7	S 21 05.9	207 13.4	S 7 56.1	15 47.9	N 10 28.3	Canopus	264 10.4	S 52 40.3		
	01	64 01.0	216 21.6	48.7	117 27.3	05.4	222 15.4	56.3	30 50.6	28.2	Capella	281 22.7	N 45 58.2		
	02	79 03.5	231 21.1	49.9	132 27.9	04.9	237 17.4	56.5	45 53.2	28.2	Deneb	49 54.1	N 45 10.5		
	03	94 06.0	246 20.6	.. 51.0	147 28.5	.. 04.4	252 19.4	.. 56.7	60 55.9	.. 28.1	Denebola	183 07.3	N 14 44.4		
	04	109 08.4	261 20.1	52.2	162 29.1	04.0	267 21.4	56.9	75 58.6	28.0	Diphda	349 28.5	S 18 09.0		
	05	124 10.9	276 19.6	53.3	177 29.7	03.5	282 23.3	57.1	91 01.2	28.0					
	06	139 13.4	291 19.1	S 9 54.4	192 30.3	S 21 03.0	297 25.3	S 7 57.3	106 03.9	N 10 27.9	Dubhe	194 31.8	N 61 54.6		
	07	154 15.8	306 18.6	55.6	207 30.9	02.5	312 27.3	57.4	121 06.5	27.9	Elmath	278 53.9	N 28 35.2		
	08	169 18.3	321 18.1	56.7	222 31.5	02.0	327 29.3	57.6	136 09.2	27.8	Eltanin	91 01.8	N 51 29.6		
	09	184 20.8	336 17.6	.. 57.8	237 32.1	.. 01.6	342 31.2	.. 57.8	151 11.8	.. 27.7	Enif	34 19.4	N 9 44.2		
	10	199 23.2	351 17.2	S 9 59.0	252 32.6	01.1	357 33.2	58.0	166 14.5	27.7	Fomalhaut	15 59.9	S 29 47.0		
	11	214 25.7	6 16.7	10 00.1	267 33.2	00.6	12 35.2	58.2	181 17.1	27.6					
	12	229 28.1	21 16.2	S 10 01.2	282 33.8	S 21 00.1	27 37.2	S 7 58.4	196 19.8	N 10 27.6	Gacrux	172 38.4	S 56 56.5		
	13	244 30.6	36 15.7	02.4	297 34.4	20 59.6	42 39.2	58.6	211 22.4	27.5	Gienah	176 26.5	S 17 22.3		
	14	259 33.1	51 15.2	03.5	312 35.0	59.2	57 41.1	58.8	226 25.1	27.4	Hadar	149 35.6	S 60 13.6		
	15	274 35.5	66 14.7	.. 04.6	327 35.6	.. 58.7	72 43.1	.. 59.0	241 27.7	.. 27.4	Hamal	328 37.6	N 23 19.4		
	16	289 38.0	81 14.2	05.8	342 36.2	58.2	87 45.1	59.1	256 30.4	27.3	Kaus Aust.	84 27.6	S 34 24.2		
17	304 40.5	96 13.7	06.9	357 36.8	57.7	102 47.1	59.3	271 33.0	27.3						
18	319 42.9	111 13.2	S 10 08.0	12 37.4	S 20 57.2	117 49.0	S 7 59.5	286 35.7	N 10 27.2	Kochab	137 19.2	N 74 16.6			
19	334 45.4	126 12.7	09.2	27 38.0	56.7	132 51.0	59.7	301 38.3	27.1	Markab	14 11.0	N 15 02.7			
20	349 47.9	141 12.2	10.3	42 38.6	56.3	147 53.0	7 59.9	316 41.0	27.1	Menkar	314 49.1	N 3 58.6			
21	4 50.3	156 11.7	.. 11.4	57 39.2	.. 55.8	162 55.0	8 00.1	331 43.6	.. 27.0	Merkenk	148 46.9	S 36 13.3			
22	19 52.8	171 11.2	12.6	72 39.8	55.3	177 57.0	00.3	346 46.3	27.0	Miaplacidus	221 47.1	S 69 35.1			
23	34 55.2	186 10.7	13.7	87 40.4	54.8	192 58.9	00.5	1 48.9	26.9						
TUESDAY	00	49 57.7	201 10.2	S 10 14.8	102 41.0	S 20 54.3	208 00.9	S 8 00.6	16 51.6	N 10 26.8	Mirfak	309 27.2	N 49 45.5		
	01	65 00.2	216 09.7	16.0	117 41.6	53.8	223 02.9	00.8	31 54.2	26.8	Nunki	76 39.2	S 26 20.3		
	02	80 02.6	231 09.2	17.1	132 42.2	53.3	238 04.9	01.0	46 56.9	26.7	Poacock	54 10.9	S 56 50.3		
	03	95 05.1	246 08.7	.. 18.2	147 42.8	.. 52.9	253 06.9	.. 01.2	61 59.5	.. 26.7	Pollux	244 07.7	N 28 06.1		
	04	110 07.6	261 08.2	19.3	162 43.4	52.4	268 08.8	01.4	77 02.2	26.6	Procyon	245 33.9	N 5 18.4		
	05	125 10.0	276 07.7	20.5	177 44.0	51.9	283 10.8	01.6	92 04.8	26.5					
	06	140 12.5	291 07.2	S 10 21.6	192 44.6	S 20 51.4	298 12.8	S 8 01.8	107 07.5	N 10 26.5	Rasalhague	96 37.2	N 12 34.8		
	07	155 15.0	306 06.7	22.7	207 45.2	50.9	313 14.8	02.0	122 10.1	26.4	Regulus	208 18.5	N 12 07.0		
	08	170 17.4	321 06.2	23.8	222 45.8	50.4	328 16.8	02.2	137 12.8	26.4	Rigel	281 43.4	S 8 13.9		
	09	185 19.9	336 05.7	.. 25.0	237 46.4	.. 49.9	343 18.7	.. 02.3	152 15.4	.. 26.3	Rigel Kent.	140 37.6	S 60 42.6		
	10	200 22.3	351 05.2	26.1	252 46.9	49.4	358 20.7	02.5	167 18.0	26.2	Sabik	102 50.6	S 15 41.4		
	11	215 24.8	6 04.7	27.2	267 47.5	49.0	13 22.7	02.7	182 20.7	26.2					
	12	230 27.3	21 04.2	S 10 28.3	282 48.1	S 20 48.5	28 24.7	S 8 02.9	197 23.3	N 10 26.1	Schedar	350 18.0	N 56 22.6		
	13	245 29.7	36 03.7	29.5	297 48.7	48.0	43 26.6	03.1	212 26.0	26.1	Shaula	97 07.0	S 37 05.2		
	14	260 32.2	51 03.2	30.6	312 49.3	47.5	58 28.6	03.3	227 28.6	26.0	Sirius	259 02.5	S 16 40.1		
	15	275 34.7	66 02.7	.. 31.7	327 49.9	.. 47.0	73 30.6	.. 03.5	242 31.3	.. 25.9	Spica	159 06.3	S 11 00.2		
	16	290 37.1	81 02.2	32.8	342 50.5	46.5	88 32.6	03.7	257 33.9	25.9	Suhail	223 16.8	S 43 18.2		
17	305 39.6	96 01.7	34.0	357 51.1	46.0	103 34.6	.. 03.8	272 36.6	25.8						
18	320 42.1	111 01.2	S 10 35.1	12 51.7	S 20 45.5	118 36.5	S 8 04.0	287 39.2	N 10 25.8	Vega	81 01.5	N 38 45.4			
19	335 44.5	126 00.6	36.2	27 52.3	45.0	133 38.5	04.2	302 41.9	25.7	Zuben'ubi	137 42.2	S 15 55.0			
20	350 47.0	141 00.1	37.3	42 52.9	44.5	148 40.5	04.4	317 44.5	25.6						
21	5 49.5	155 59.6	.. 38.5	57 53.5	.. 44.0	163 42.5	.. 04.6	332 47.2	.. 25.6		S.H.A.	Mer. Pass.			
22	20 51.9	170 59.1	39.6	72 54.1	43.5	178 44.5	04.8	347 49.8	25.5	Venus	152 23.5	10 35			
23	35 54.4	185 58.6	40.7	87 54.7	43.1	193 46.4	05.0	2 52.5	25.5	Mars	53 28.1	17 10			
Mer. Pass. 20 40.7		v -0.5		d 1.1	v 0.6		d 0.5	v 2.0		d 0.2	v 2.7		d 0.1	Jupiter 158 14.8 10 10	
														Saturn 326 49.3 22 53	

	ARIES			VENUS -3.4			MARS +0.5			JUPITER -1.2			SATURN +0.1			STARS		
G.M.T.	G.H.A.			G.H.A. Dec.			G.H.A. Dec.			G.H.A. Dec.			G.H.A. Dec.			Name	S.H.A.	Dec.
d h	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "
WEDNESDAY	12 00	50 56.9	200 58.1	S 10 41.8	102 55.3	S 20 42.6	208 48.4	S 8 05.2	17 55.1	N 10 25.4	Acamar	315 42.7	S 40 25.3					
	01	65 59.3	215 57.6	42.9	117 55.9	42.1	223 50.4	05.3	32 57.8	25.4	Achernar	335 50.3	S 57 23.4					
	02	81 01.8	230 57.1	44.1	132 56.5	41.6	238 52.4	05.5	48 00.4	25.3	Acruz	173 47.0	S 62 55.7					
	03	96 04.2	245 56.6	45.2	147 57.1	41.1	253 54.4	05.7	63 03.1	25.2	Adhara	255 38.1	S 28 55.5					
	04	111 06.7	260 56.1	46.3	162 57.7	40.6	268 56.3	05.9	78 05.7	25.2	Aldebaran	291 26.8	N 16 27.2					
	05	126 09.2	275 55.6	47.4	177 58.3	40.1	283 58.3	06.1	93 08.4	25.1								
	06	141 11.6	290 55.1	S 10 48.5	192 58.9	S 20 39.6	299 00.3	S 8 06.3	108 11.0	N 10 25.1	Alioth	166 49.6	N 56 07.2					
	07	156 14.1	305 54.5	49.6	207 59.5	39.1	314 02.3	06.5	123 13.7	25.0	Alkaid	153 25.0	N 49 27.7					
	08	171 16.6	320 54.0	50.8	223 00.1	38.6	329 04.3	06.7	138 16.3	24.9	Al Na'ir	28 24.6	S 47 06.7					
	09	186 19.0	335 53.5	51.9	238 00.7	38.1	344 06.3	06.8	153 19.0	24.9	Alnilam	276 19.5	S 1 12.9					
	10	201 21.5	350 53.0	53.0	253 01.3	37.6	359 08.2	07.0	168 21.6	24.8	Alphard	218 28.4	S 8 31.4					
	11	216 24.0	5 52.5	54.1	268 01.9	37.1	14 10.2	07.2	183 24.3	24.8								
	12	231 26.4	20 52.0	S 10 55.2	283 02.5	S 20 36.6	29 12.2	S 8 07.4	198 26.9	N 10 24.7	Alphecca	126 39.1	N 26 48.9					
	13	246 28.9	35 51.5	56.3	298 03.1	36.1	44 14.2	07.6	213 29.6	24.6	Alpheratz	358 17.4	N 28 55.7					
	14	261 31.3	50 51.0	57.4	313 03.7	35.6	59 16.2	07.8	228 32.2	24.6	Altair	62 40.5	N 8 47.3					
	15	276 33.8	65 50.4	58.6	328 04.3	35.1	74 18.1	08.0	243 34.8	24.5	Ankaa	353 47.6	S 42 28.2					
	16	291 36.3	80 49.9	10 59.7	343 04.9	34.6	89 20.1	08.1	258 37.5	24.5	Antares	113 07.0	S 26 22.1					
17	306 38.7	95 49.4	11 00.8	358 05.5	34.1	104 22.1	08.3	273 40.1	24.4									
18	321 41.2	110 48.9	S 11 01.9	13 06.1	S 20 33.6	119 24.1	S 8 08.5	288 42.8	N 10 24.3	Arcturus	146 26.0	N 19 20.3						
19	336 43.7	125 48.4	03.0	28 06.7	33.1	134 26.1	08.7	303 45.4	24.3	Atria	108 39.0	S 68 58.7						
20	351 46.1	140 47.9	04.1	43 07.3	32.6	149 28.0	08.9	318 48.1	24.2	Avior	234 31.5	S 59 24.3						
21	6 48.6	155 47.3	05.2	58 07.9	32.1	164 30.0	09.1	333 50.7	24.2	Bellatrix	279 07.0	N 6 19.6						
22	21 51.1	170 46.8	06.3	73 08.5	31.6	179 32.0	09.3	348 53.4	24.1	Betelgeuse	271 36.6	N 7 24.4						
23	36 53.5	185 46.3	07.5	88 09.1	31.1	194 34.0	09.4	3 56.0	24.1									
THURSDAY	13 00	51 56.0	200 45.8	S 11 08.6	103 09.7	S 20 30.6	209 36.0	S 8 09.6	18 58.7	N 10 24.0	Canopus	264 10.4	S 52 40.3					
	01	66 58.5	215 45.3	09.7	118 10.3	30.1	224 38.0	09.8	34 01.3	23.9	Capella	281 22.6	N 45 58.2					
	02	82 00.9	230 44.8	10.8	133 10.9	29.6	239 39.9	10.0	49 04.0	23.9	Deneb	49 54.1	N 45 10.5					
	03	97 03.4	245 44.2	11.9	148 11.5	29.1	254 41.9	10.2	64 06.6	23.8	Denebola	183 07.3	N 14 44.4					
	04	112 05.8	260 43.7	13.0	163 12.1	28.6	269 43.9	10.4	79 09.3	23.8	Diphda	349 28.5	S 18 09.0					
	05	127 08.3	275 43.2	14.1	178 12.7	28.1	284 45.9	10.6	94 11.9	23.7								
	06	142 10.8	290 42.7	S 11 15.2	193 13.3	S 20 27.6	299 47.9	S 8 10.7	109 14.5	N 10 23.6	Dubhe	194 31.8	N 61 54.6					
	07	157 13.2	305 42.2	16.3	208 13.9	27.1	314 49.8	10.9	124 17.2	23.6	Elnath	278 53.9	N 28 35.2					
	08	172 15.7	320 41.6	17.4	223 14.5	26.6	329 51.8	11.1	139 19.8	23.5	Eltanin	91 01.8	N 51 29.6					
	09	187 18.2	335 41.1	18.5	238 15.1	26.1	344 53.8	11.3	154 22.5	23.5	Enif	34 19.4	N 9 44.2					
	10	202 20.6	350 40.6	19.6	253 15.7	25.6	359 55.8	11.5	169 25.1	23.4	Fomalhaut	15 59.9	S 29 47.0					
	11	217 23.1	5 40.1	20.7	268 16.3	25.1	14 57.8	11.7	184 27.8	23.4								
	12	232 25.6	20 39.5	S 11 21.8	283 16.9	S 20 24.6	29 59.8	S 8 11.9	199 30.4	N 10 23.3	Gacrux	172 38.4	S 56 56.5					
	13	247 28.0	35 39.0	22.9	298 17.5	24.1	45 01.7	12.0	214 33.1	23.2	Gienah	176 26.4	S 17 22.3					
	14	262 30.5	50 38.5	24.0	313 18.1	23.6	60 03.7	12.2	229 35.7	23.2	Hadar	149 35.6	S 60 13.6					
	15	277 33.0	65 38.0	25.1	328 18.7	23.1	75 05.7	12.4	244 38.4	23.1	Hamal	328 37.6	N 23 19.4					
	16	292 35.4	80 37.5	26.3	343 19.3	22.6	90 07.7	12.6	259 41.0	23.1	Kaus Aust.	84 27.7	S 34 24.2					
17	307 37.9	95 36.9	27.4	358 19.9	22.0	105 09.7	12.8	274 43.6	23.0									
18	322 40.3	110 36.4	S 11 28.5	13 20.5	S 20 21.5	120 11.7	S 8 13.0	289 46.3	N 10 22.9	Kochab	137 19.2	N 74 16.6						
19	337 42.8	125 35.9	29.6	28 21.1	21.0	135 13.6	13.2	304 48.9	22.9	Markab	14 11.0	N 15 02.7						
20	352 45.3	140 35.4	30.7	43 21.7	20.5	150 15.6	13.3	319 51.6	22.8	Menkar	314 49.1	N 3 58.6						
21	7 47.7	155 34.8	31.8	58 22.3	20.0	165 17.6	13.5	334 54.2	22.8	Menkent	148 46.9	S 36 13.3						
22	22 50.2	170 34.3	32.9	73 22.9	19.5	180 19.6	13.7	349 56.9	22.7	Miaplacidus	221 47.0	S 69 35.1						
23	37 52.7	185 33.8	33.9	88 23.5	19.0	195 21.6	13.9	4 59.5	22.7									
FRIDAY	14 00	52 55.1	200 33.2	S 11 35.0	103 24.1	S 20 18.5	210 23.6	S 8 14.1	20 02.2	N 10 22.6	Mirfak	309 27.2	N 49 45.5					
	01	67 57.6	215 32.7	36.1	118 24.7	18.0	225 25.5	14.3	35 04.8	22.5	Nunki	76 39.2	S 26 20.3					
	02	83 00.1	230 32.2	37.2	133 25.3	17.5	240 27.5	14.5	50 07.5	22.5	Peacock	54 10.9	S 56 50.3					
	03	98 02.5	245 31.7	38.3	148 25.9	17.0	255 29.5	14.6	65 10.1	22.4	Pollux	244 07.7	N 28 06.1					
	04	113 05.0	260 31.1	39.4	163 26.5	16.4	270 31.5	14.8	80 12.7	22.4	Procyon	245 33.9	N 5 18.4					
	05	128 07.5	275 30.6	40.5	178 27.1	15.9	285 33.5	15.0	95 15.4	22.3								
	06	143 09.9	290 30.1	S 11 41.6	193 27.7	S 20 15.4	300 35.5	S 8 15.2	110 18.0	N 10 22.3	Rasalhague	96 37.3	N 12 34.8					
	07	158 12.4	305 29.5	42.7	208 28.3	14.9	315 37.4	15.4	125 20.7	22.2	Regulus	208 18.5	N 12 07.0					
	08	173 14.8	320 29.0	43.8	223 28.9	14.4	330 39.4	15.6	140 23.3	22.1	Rigel	281 43.3	S 8 13.9					
	09	188 17.3	335 28.5	44.9	238 29.5	13.9	345 41.4	15.8	155 26.0	22.1	Rigel Kent.	140 37.6	S 60 42.6					
	10	203 19.8	350 28.0	46.0	253 30.1	13.4	0 43.4	15.9	170 28.6	22.0	Sabik	102 50.6	S 15 41.4					
	11	218 22.2	5 27.4	47.1	268 30.7	12.9	15 45.4	16.1	185 31.3	22.0								
	12	233 24.7	20 26.9	S 11 48.2	283 31.3	S 20 12.3	30 47.4	S 8 16.3	200 33.9	N 10 21.9	Schedar	350 18.0	N 56 22.6					
	13	248 27.2	35 26.4	49.3	298 31.9	11.8	45 49.3	16.5	215 36.5	21.9	Shaula	97 07.0	S 37 05.2					
	14	263 29.6	50 25.8	50.4	313 32.5	11.3	60 51.3	16.7	230 39.2	21.8	Sirius	259 02.5	S 16 40.1					
	15	278 32.1	65 25.3	51.5	328 33.1	10.8	75 53.3	16.9	245 41.8	21.7	Spica	159 06.2	S 11 00.2					
	16	293 34.6	80 24.8	52.6	343 33.7	10.3	90 55.3	17.0	260 44.5	21.7	Suhail	223 16.7	S 43 18.2					
17	308 37.0	95 24.2	53.6	358 34.3	09.8	105 57.3	17.2	275 47.1	21.6									
18	323 39.5	110 23.7	S 11 54.7	13 34.9	S 20 09.3	120 59.3	S 8 17.4	290 49.8	N 10 21.6	Vega	81 01.5	N 38 45.4						
19	338 42.0	125 23.1	55.8	28 35.5	08.7	136 01.3	17.6	305 52.4	21.5	Zuben'ubi	137 42.2	S 15 55.1						
20	353 44.4	140 22.6	56.9	43 36.1	08.2	151 03.2	17.8	320 55.1	21.5									
21	8 46.9	155 22.1	58.0	58 36.7	07.7	166 05.2	18.0	335 57.7	21.4									
22	23 49.3	170 21.5	11 59.1	73 37.3	07.2	181 07.2	18.2	351 00.3	21.3	Venus	148 49.8	10 37						
23	38 51.8	185 21.0	12 00.2	88 37.9	06.7	196 09.2	18.3	6 03.0	21.3	Mars	51 13.7	17 07						
										Jupiter	157 40.0	10 00						
										Saturn	327 02.7	22 40						
Mer. Pass. 20 28.9		v -0.5	d 1.1		v 0.6	d 0.5		v 2.0	d 0.2		v 2.6	d 0.1						

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise																
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	12	13	14	15												
d	h	°	'	°	'	°	'	°	'	h	m	h	m	h	m	h	m											
12 00	00	183	58.0	S 17	35.6	155	25.7	2.7	S 27	51.7	3.7	59.8	N 72	06	51	08	24	10	30	■	■	■	■					
	01	198	57.9		36.2	169	47.4	2.7	27	55.4	3.4	59.8	N 70	06	42	08	03	09	35	■	■	■	■					
	02	213	57.9		36.9	184	09.1	2.6	27	58.8	3.2	59.8	68	06	35	07	47	09	03	■	■	■	16 00					
	03	228	57.8		37.6	184	09.1	2.6	27	58.8	3.2	59.8	66	06	28	07	33	08	39	■	■	■	15 14					
	04	243	57.7		38.3	198	30.7	2.6	28	02.0	3.0	59.8	64	06	22	07	22	08	20	■	■	15	18	14	43			
	05	258	57.6		39.0	212	52.3	2.5	28	05.0	2.9	59.8	62	06	17	07	12	08	05	■	14	53	14	29	14	20		
	06	273	57.6	S 17	39.6	227	13.8	2.4	28	07.9	2.6	59.8	60	06	13	07	04	07	52	12	53	13	42	13	57	14	02	
	07	288	57.5		40.3	241	35.2	2.5	S 28	10.5	2.4	59.8	N 58	06	08	06	57	07	41	12	11	13	07	13	33	13	46	
	08	303	57.4		41.0	255	56.7	2.4	28	12.9	2.2	59.8	56	06	05	06	50	07	32	11	43	12	41	13	14	13	33	
	09	318	57.3		41.7	270	18.1	2.3	28	15.1	2.0	59.8	54	06	01	06	44	07	23	11	21	12	20	12	58	13	21	
WEDNESDAY	10	333	57.2		42.4	284	39.4	2.4	28	17.1	1.8	59.8	52	05	58	06	39	07	16	11	03	12	03	12	44	13	11	
	11	348	57.2		43.0	299	00.8	2.3	28	18.9	1.6	59.8	50	05	55	06	34	07	09	10	47	11	48	12	32	13	01	
	12					313	22.1	2.2	28	20.5	1.4	59.8	45	05	48	06	23	06	55	10	16	11	18	12	06	12	42	
	13					327	43.3	2.3	S 28	21.9	1.2	59.8	N 40	05	41	06	14	06	43	09	52	10	55	11	46	12	26	
	14					342	04.6	2.3	28	23.1	1.0	59.9	35	05	35	06	05	06	32	09	32	10	36	11	29	12	12	
	15					356	25.9	2.2	28	24.1	0.7	59.9	30	05	29	05	58	06	23	09	15	10	19	11	14	12	00	
	16					10	47.1	2.2	28	24.8	0.6	59.9	20	05	18	05	44	06	08	08	47	09	51	10	49	11	40	
	17					25	08.3	2.2	28	25.4	0.4	59.9	N 10	05	06	05	32	05	54	08	22	09	27	10	27	11	22	
	18					39	29.5	2.3	28	25.8	0.1	59.9	0	04	54	05	19	05	41	07	59	09	04	10	07	11	06	
	19					53	50.8	2.2	S 28	25.9	0.1	59.9	S 10	04	40	05	06	05	28	07	37	08	42	09	47	10	49	
THURSDAY	20	108	56.5		48.4	68	12.0	2.2	28	25.8	0.2	59.9	20	04	22	04	50	05	14	07	12	08	17	09	25	10	31	
	21	123	56.4		49.1	82	33.2	2.2	28	25.6	0.5	59.9	30	04	00	04	31	04	57	06	44	07	49	08	59	10	10	
	22	138	56.3		49.8	96	54.4	2.2	28	25.1	0.7	59.9	35	03	46	04	20	04	48	06	28	07	33	08	44	09	58	
	23	153	56.2		50.4	111	15.6	2.3	28	24.4	0.9	59.9	40	03	29	04	06	04	37	06	08	07	13	08	27	09	44	
	01	168	56.2		51.1	125	36.9	2.2	28	23.5	1.1	59.9	45	03	08	03	50	04	24	05	45	06	49	08	06	09	27	
	02	183	56.1	S 17	51.8	139	58.1	2.3	S 28	22.4	1.3	59.9	S 50	02	39	03	29	04	08	05	15	06	19	07	39	09	06	
	03	198	56.0		52.5	154	19.4	2.3	28	21.1	1.5	59.9	52	02	24	03	19	04	00	05	00	06	04	07	26	08	56	
	04	213	55.9		53.1	168	40.7	2.3	28	19.6	1.7	59.9	54	02	06	03	08	03	52	04	43	05	47	07	11	08	45	
	05	228	55.8		53.8	183	02.0	2.4	28	17.9	1.9	59.9	56	01	43	02	54	03	43	04	22	05	25	06	53	08	32	
	06	243	55.7		54.5	197	23.4	2.3	28	16.0	2.1	59.9	58	01	12	02	39	03	32	03	56	04	59	06	32	08	17	
FRIDAY	07	258	55.6		55.1	211	44.7	2.5	28	13.9	2.4	59.9	S 60	00	08	02	20	03	20	03	21	04	21	06	04	07	59	
	08	273	55.6	S 17	55.8	226	06.2	2.4	S 28	11.5	2.5	59.9	Lat.		Sun-set		Twilight		Moonset									
	09	288	55.5		56.5	240	27.6	2.5	28	09.0	2.7	59.9			Civil		Naut.											
	10	303	55.4		57.1	254	49.1	2.5	28	06.3	3.0	59.9																
	11	318	55.3		57.8	269	10.6	2.6	28	03.3	3.1	59.9																
	12	333	55.2		58.5	283	32.2	2.6	28	00.2	3.4	59.9																
	13	348	55.1		59.1	297	53.8	2.7	27	56.8	3.5	59.9																
	14					312	15.5	2.7	S 27	53.3	3.8	59.9	N 72	12	57	15	04	16	36	■	■	■	■	■	■	■	■	
	15					326	37.2	2.8	27	49.5	3.9	59.9	N 70	13	52	15	25	16	45	■	■	■	■	■	■	■	■	
	16					340	59.0	2.8	27	45.6	4.1	59.9	68	14	25	15	41	16	53	■	■	■	■	■	■	■	18	57
SATURDAY	17					355	20.8	2.9	27	41.5	4.4	59.9	66	14	49	15	55	17	00	■	■	■	■	■	■	■	19	42
	18					9	42.7	3.0	27	37.1	4.5	59.8	64	15	08	16	06	17	06	■	■	■	■	17	37	20	11	
	19					24	04.7	3.0	27	32.6	4.7	59.8	62	15	23	16	16	17	11	■	15	51	18	26	20	33		
	20					38	26.7	3.1	S 27	27.9	5.0	59.8	60	15	36	16	24	17	15	15	36	17	02	18	57	20	51	
	21					52	48.8	3.2	27	22.9	5.1	59.8	N 58	15	47	16	31	17	19	16	17	17	37	19	20	21	06	
	22					67	11.0	3.2	27	17.8	5.3	59.8	56	15	56	16	38	17	23	16	46	18	03	19	38	21	18	
	23					81	33.2	3.3	27	12.5	5.5	59.8	54	16	05	16	44	17	27	17	08	18	23	19	54	21	29	
	01					95	55.5	3.4	27	07.0	5.6	59.8	52	16	12	16	49	17	30	17	26	18	40	20	08	21	39	
	02					110	17.9	3.5	27	01.4	5.9	59.8	50	16	19	16	54	17	33	17	42	18	55	20	19	21	47	
	03					125	36.9	3.5	27	01.4	5.9	59.8	45	16	34	17	05	17	41	18	13	19	24	20	44	22	05	
SUNDAY	04	183	53.9	S 18	07.7	124	40.4	3.5	S 26	55.5	6.1	59.8	N 40	16	46	17	15	17	47	18	37	19	47	21	03	22	20	
	05	198	53.8		08.4	139	02.9	3.7	26	49.4	6.2	59.8	35	16	56	17	23	17	53	18	57	20	06	21	19	22	32	
	06	213	53.7		09.0	153	25.6	3.7	26	43.2	6.4	59.8	30	17	05	17	30	17	59	19	14	20	22	21	33	22	43	
	07	228	53.7		09.7	167	48.3	3.8	26	36.8	6.6	59.8	20	17	21	17	44	18	11	19	43	20	49	21	57	23	01	
	08	243	53.6		10.3	182	11.1	3.9	26	30.2	6.8	59.8	N 10	17	35	17	57	18	22	20	07	21	13	22	17	23	17	
	09	258	53.5		11.0	196	34.0	4.0	26	23.4	7.0	59.8	0	17	48	18	10	18	35	20	30	21	35	22	35	23	32	
	10	273	53.4	S 18	11.6	210	57.0	4.1																				

G.M.T.	ARIES			VENUS -3-4			MARS +0-6			JUPITER -1-3			SATURN +0-1			STARS		
	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "
15 00	53 54.3	200 20.5	S 12 01.3	103 38.6	S 20 06.2		211 11.2	S 8 18.5		21 05.6	N 10 21.2		Acamar	315 42.7	S 40 25.3			
01	68 56.7	215 19.9	02.4	118 39.2	05.6		226 13.2	18.7		36 08.3	21.2		Achernar	335 50.3	S 57 23.4			
02	83 59.2	230 19.4	03.4	133 39.8	05.1		241 15.1	18.9		51 10.9	21.1		Arcturus	173 47.0	S 62 55.7			
03	99 01.7	245 18.9	04.5	148 40.4	04.6		256 17.1	19.1		66 13.6	21.1		Adhara	255 38.1	S 28 55.5			
04	114 04.1	260 18.3	05.6	163 41.0	04.1		271 19.1	19.3		81 16.2	21.0		Aldebaran	291 26.8	N 16 27.2			
05	129 06.6	275 17.8	06.7	178 41.6	03.6		286 21.1	19.4		96 18.8	20.9							
06	144 09.1	290 17.2	S 12 07.8	193 42.2	S 20 03.0		301 23.1	S 8 19.6		111 21.5	N 10 20.9		Alioth	166 49.6	N 56 07.2			
07	159 11.5	305 16.7	08.9	208 42.8	02.5		316 25.1	19.8		126 24.1	20.8		Alkaid	153 24.9	N 49 27.6			
08	174 14.0	320 16.2	09.9	223 43.4	02.0		331 27.1	20.0		141 26.8	20.8		Al Na'ir	28 24.6	S 47 06.7			
S 09	189 16.5	335 15.6	11.0	238 44.0	01.5		346 29.0	20.2		156 29.4	20.7		Alnilam	276 19.4	S 1 13.0			
A 10	204 18.9	350 15.1	12.1	253 44.6	01.0		1 31.0	20.4		171 32.1	20.7		Alphard	218 28.4	S 8 31.4			
T 11	219 21.4	5 14.5	13.2	268 45.2	20 00.4		16 33.0	20.5		186 34.7	20.6							
U 12	234 23.8	20 14.0	S 12 14.3	283 45.8	S 19 59.9		31 35.0	S 8 20.7		201 37.3	N 10 20.5		Alphecca	126 39.1	N 26 48.8			
D 13	249 26.3	35 13.4	15.4	298 46.4	59.4		46 37.0	20.9		216 40.0	20.5		Alpheratz	358 17.4	N 28 55.7			
A 14	264 28.8	50 12.9	16.4	313 47.0	58.9		61 39.0	21.1		231 42.6	20.4		Altair	62 40.5	N 8 47.2			
Y 15	279 31.2	65 12.4	17.5	328 47.6	58.4		76 41.0	21.3		246 45.3	20.4		Ankaa	353 47.6	S 42 28.2			
16	294 33.7	80 11.8	18.6	343 48.2	57.8		91 42.9	21.5		261 47.9	20.3		Antares	113 07.0	S 26 22.1			
17	309 36.2	95 11.3	19.7	358 48.8	57.3		106 44.9	21.6		276 50.5	20.3							
18	324 38.6	110 10.7	S 12 20.7	13 49.4	S 19 56.8		121 46.9	S 8 21.8		291 53.2	N 10 20.2		Arcturus	146 26.0	N 19 20.3			
19	339 41.1	125 10.2	21.8	28 50.0	56.3		136 48.9	22.0		306 55.8	20.2		Atria	108 39.0	S 68 58.7			
20	354 43.6	140 09.6	22.9	43 50.6	55.7		151 50.9	22.2		321 58.5	20.1		Avior	234 31.5	S 59 24.3			
21	9 46.0	155 09.1	24.0	58 51.2	55.2		166 52.9	22.4		337 01.1	20.0		Bellatrix	279 07.0	N 6 19.6			
22	24 48.5	170 08.5	25.1	73 51.9	54.7		181 54.9	22.6		352 03.8	20.0		Betelgeuse	271 36.6	N 7 24.4			
23	39 51.0	185 08.0	26.1	88 52.5	54.2		196 56.8	22.7		7 06.4	19.9							
16 00	54 53.4	200 07.4	S 12 27.2	103 53.1	S 19 53.6		211 58.8	S 8 22.9		22 09.0	N 10 19.9		Canopus	264 10.3	S 52 40.3			
01	69 55.9	215 06.9	28.3	118 53.7	53.1		227 00.8	23.1		37 11.7	19.8		Capella	281 22.6	N 45 58.2			
02	84 58.3	230 06.3	29.4	133 54.3	52.6		242 02.8	23.3		52 14.3	19.8		Deneb	49 54.1	N 45 10.5			
03	100 00.8	245 05.8	30.4	148 54.9	52.1		257 04.8	23.5		67 17.0	19.7		Denebola	183 07.2	N 14 44.4			
04	115 03.3	260 05.2	31.5	163 55.5	51.5		272 06.8	23.7		82 19.6	19.7		Diphda	349 28.5	S 18 09.0			
05	130 05.7	275 04.7	32.6	178 56.1	51.0		287 08.8	23.8		97 22.2	19.6							
06	145 08.2	290 04.1	S 12 33.6	193 56.7	S 19 50.5		302 10.8	S 8 24.0		112 24.9	N 10 19.5		Dubhe	194 31.7	N 61 54.6			
07	160 10.7	305 03.6	34.7	208 57.3	50.0		317 12.7	24.2		127 27.5	19.5		Elnath	278 53.8	N 28 35.2			
08	175 13.1	320 03.0	35.8	223 57.9	49.4		332 14.7	24.4		142 30.2	19.4		Eltanin	91 01.9	N 51 29.6			
S 09	190 15.6	335 02.5	36.9	238 58.5	48.9		347 16.7	24.6		157 32.8	19.4		Enif	34 19.4	N 9 44.2			
U 10	205 18.1	350 01.9	37.9	253 59.1	48.4		2 18.7	24.7		172 35.5	19.3		Fomalhaut	15 59.9	S 29 47.0			
N 11	220 20.5	5 01.4	39.0	268 59.7	47.9		17 20.7	24.9		187 38.1	19.3							
D 12	235 23.0	20 00.8	S 12 40.1	284 00.3	S 19 47.3		32 22.7	S 8 25.1		202 40.7	N 10 19.2		Gacrux	172 38.3	S 56 56.5			
A 13	250 25.4	35 00.3	41.1	299 00.9	46.8		47 24.7	25.3		217 43.4	19.1		Gienah	176 26.4	S 17 22.3			
Y 14	265 27.9	49 59.7	42.2	314 01.6	46.3		62 26.7	25.5		232 46.0	19.1		Hadar	149 35.6	S 60 13.6			
15	280 30.4	64 59.2	43.3	329 02.2	45.7		77 28.6	25.7		247 48.7	19.0		Hamal	328 37.6	N 23 19.5			
16	295 32.8	79 58.6	44.3	344 02.8	45.2		92 30.6	25.8		262 51.3	19.0		Kaus Aust.	84 27.7	S 34 24.2			
17	310 35.3	94 58.1	45.4	359 03.4	44.7		107 32.6	26.0		277 53.9	18.9							
18	325 37.8	109 57.5	S 12 46.5	14 04.0	S 19 44.1		122 34.6	S 8 26.2		292 56.6	N 10 18.9		Kochab	137 19.2	N 74 16.5			
19	340 40.2	124 56.9	47.5	29 04.6	43.6		137 36.6	26.4		307 59.2	18.8		Markab	14 11.0	N 15 02.7			
20	355 42.7	139 56.4	48.6	44 05.2	43.1		152 38.6	26.6		323 01.9	18.8		Menkar	314 49.1	N 3 58.6			
21	10 45.2	154 55.8	49.7	59 05.8	42.6		167 40.6	26.8		338 04.5	18.7		Menkent	148 46.9	S 36 13.3			
22	25 47.6	169 55.3	50.7	74 06.4	42.0		182 42.6	26.9		353 07.1	18.6		Miaplacidus	221 47.0	S 69 35.1			
23	40 50.1	184 54.7	51.8	89 07.0	41.5		197 44.5	27.1		8 09.8	18.6							
17 00	55 52.6	199 54.2	S 12 52.8	104 07.6	S 19 41.0		212 46.5	S 8 27.3		23 12.4	N 10 18.5		Mirfak	309 27.1	N 49 45.5			
01	70 55.0	214 53.6	53.9	119 08.2	40.4		227 48.5	27.5		38 15.1	18.5		Nunki	76 39.2	S 26 20.3			
02	85 57.5	229 53.0	55.0	134 08.8	39.9		242 50.5	27.7		53 17.7	18.4		Peacock	54 10.9	S 56 50.3			
03	100 59.9	244 52.5	56.0	149 09.5	39.4		257 52.5	27.8		68 20.3	18.4		Pollux	244 07.6	N 28 06.1			
04	116 02.4	259 51.9	57.1	164 10.1	38.8		272 54.5	28.0		83 23.0	18.3		Procyon	245 33.9	N 5 18.4			
05	131 04.9	274 51.4	58.1	179 10.7	38.3		287 56.5	28.2		98 25.6	18.3							
06	146 07.3	289 50.8	S 12 59.2	194 11.3	S 19 37.8		302 58.5	S 8 28.4		113 28.2	N 10 18.2		Rasalhague	96 37.2	N 12 34.8			
07	161 09.8	304 50.2	13 00.3	209 11.9	37.2		318 00.5	28.6		128 30.9	18.2		Regulus	208 18.4	N 12 07.0			
08	176 12.3	319 49.7	01.3	224 12.5	36.7		333 02.4	28.8		143 33.5	18.1		Rigel	281 43.3	S 8 13.9			
M 09	191 14.7	334 49.1	02.4	239 13.1	36.1		348 04.4	28.9		158 36.2	18.0		Rigel Kent.	140 37.5	S 60 42.6			
O 10	206 17.2	349 48.5	03.4	254 13.7	35.6		3 06.4	29.1		173 38.8	18.0		Sabik	102 50.6	S 15 41.4			
N 11	221 19.7	4 48.0	04.5	269 14.3	35.1		18 08.4	29.3		188 41.4	17.9							
D 12	236 22.1	19 47.4	S 13 05.5	284 14.9	S 19 34.5		33 10.4	S 8 29.5		203 44.1	N 10 17.9		Schedar	350 18.0	N 56 22.6			
A 13	251 24.6	34 46.9	06.6	299 15.5	34.0		48 12.4	29.7		218 46.7	17.8		Shaula	97 07.0	S 37 05.2			
Y 14	266 27.1	49 46.3	07.7	314 16.2	33.5		63 14.4	29.8		233 49.4	17.8		Sirius	259 02.5	S 16 40.2			
15	281 29.5	64 45.7	08.7	329 16.8	32.9		78 16.4	30.0		248 52.0	17.7		Spica	159 06.2	S 11 00.2			
16	296 32.0	79 45.2	09.8	344 17.4	32.4		93 18.4	30.2		263 54.6	17.7		Suhail	223 16.7	S 43 18.2			
17	311 34.4	94 44.6	10.8	359 18.0	31.9		108 20.3	30.4		278 57.3	17.6							
18	326 36.9	109 44.0	S 13 11.9	14 18.6	S 19 31.3		123 22.3	S 8 30.6		293 59.9	N 10 17.5		Vega	81 01.6	N 38 45.3			
19	341 39.4	124 43.5	12.9	29 19.2	30.8		138 24.3	30.7		309 02.5	17.5		Zuben'ubi	137 42.2	S 15 55.1			
20	356 41.8	139 42.9	14.0	44 19.8	30.2		153 26.3	30.9		324 05.2	17.4							
21	11 44																	

G.M.T.	SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise									
	G.H.A.	Dec.	G.H.A.	φ	Dec.	d		H.P.	Naut.		Civil	15	16	17	18					
d h	°	'	°	'	°	'	°	^h °	^m '	^h °	^m '	^h °	^m '	^h °	^m '	^h °	^m '			
1500 S A T U R D A Y	183	51.6	S 18	23.3	110	08.1	5.9	S 23	42.3	10.1	59.6	N 72	07 02	08 38	11 21		16 03	15 01	14 21	
	198	51.5		24.0	124	33.0	6.1	23	32.2	10.2	59.6	N 70	06 52	08 15	09 55		15 28	14 46	14 16	
	213	51.4		24.6	138	58.1	6.2	23	22.0	10.3	59.6	68	06 43	07 57	09 17	16 00	15 03	14 34	14 12	
	228	51.3		25.2	153	23.3	6.3	23	11.7	10.5	59.5	66	06 36	07 42	08 50	15 14	14 43	14 24	14 09	
	243	51.2		25.9	167	48.6	6.5	23	01.2	10.6	59.5	64	06 29	07 30	08 30	14 43	14 27	14 16	14 06	
	258	51.1		26.5	182	14.1	6.5	22	50.6	10.7	59.5	62	06 24	07 20	08 14	14 20	14 14	14 09	14 04	
	273	51.0	S 18	27.2	196	39.6	6.7	S 22	39.9	10.9	59.5	60	06 19	07 11	08 00	14 02	14 03	14 02	14 01	
	288	50.8		27.8	211	05.3	6.7	22	29.0	11.1	59.5	N 58	06 14	07 03	07 48	13 46	13 53	13 57	14 00	
	303	50.7		28.5	225	31.0	6.9	22	17.9	11.1	59.5	56	06 10	06 55	07 38	13 33	13 44	13 52	13 58	
	318	50.6		29.1	239	56.9	7.0	22	06.8	11.3	59.5	54	06 06	06 49	07 29	13 21	13 36	13 47	13 56	
333	50.5		29.7	254	22.9	7.1	21	55.5	11.4	59.5	52	06 02	06 44	07 21	13 11	13 29	13 43	13 55		
348	50.4		30.4	268	49.0	7.3	21	44.1	11.6	59.4	50	05 59	06 38	07 14	13 01	13 23	13 39	13 53		
358	50.3	S 18	31.0	283	15.3	7.3	S 21	32.5	11.6	59.4	45	05 51	06 27	06 59	12 42	13 09	13 31	13 51		
18	93	49.7	S 18	34.8	9	55.1	8.0	S 20	20.7	12.3	59.3	S 10	04 39	05 05	05 28	10 49	11 47	12 41	13 33	
19	108	49.6		35.5	24	22.1	8.1	20	08.4	12.5	59.3	20	04 21	04 49	05 13	10 31	11 34	12 33	13 30	
20	123	49.5		36.1	38	49.2	8.3	19	55.9	12.6	59.3	30	03 58	04 30	04 56	10 10	11 19	12 24	13 27	
21	138	49.3		36.7	53	16.5	8.3	19	43.3	12.7	59.3	35	03 44	04 18	04 46	09 58	11 10	12 19	13 25	
22	153	49.2		37.3	67	43.8	8.5	19	30.6	12.8	59.3	40	03 26	04 03	04 34	09 44	11 00	12 13	13 23	
23	168	49.1		38.0	82	11.3	8.6	19	17.8	12.9	59.3	45	03 03	03 46	04 20	09 27	10 48	12 05	13 20	
1600	183	49.0	S 18	38.6	96	38.9	8.7	S 19	04.9	13.0	59.3	S 50	02 33	03 25	04 04	09 06	10 33	11 57	13 18	
01	198	48.9		39.2	111	06.6	8.8	18	51.9	13.1	59.2	52	02 16	03 14	03 56	08 56	10 26	11 53	13 16	
02	213	48.8		39.9	125	34.4	8.9	18	38.8	13.3	59.2	54	01 57	03 02	03 47	08 45	10 18	11 48	13 15	
03	228	48.7		40.5	140	02.3	9.0	18	25.5	13.3	59.2	56	01 32	02 48	03 37	08 32	10 10	11 44	13 13	
04	243	48.6		41.1	154	30.3	9.2	18	12.2	13.4	59.2	58	00 55	02 31	03 26	08 17	10 00	11 38	13 11	
05	258	48.5		41.8	168	58.5	9.2	17	58.8	13.5	59.2	S 60	///	02 10	03 13	07 59	09 49	11 32	13 09	
06	273	48.3	S 18	42.4	183	26.7	9.3	S 17	45.3	13.5	59.2		Lat.	Sun-set	Twilight		Moonset			
07	288	48.2		43.0	197	55.0	9.5	17	31.8	13.7	59.1				Civil	Naut.	15	16	17	18
08	303	48.1		43.6	212	23.5	9.5	17	18.1	13.8	59.1									
09	318	48.0		44.3	226	52.0	9.7	17	04.3	13.8	59.1									
10	333	47.9		44.9	241	20.7	9.7	16	50.5	14.0	59.1									
11	348	47.8		45.5	255	49.4	9.9	16	36.5	14.0	59.1	N 72	12 06	14 50	16 26		20 48	23 32	25 51	
12	3 47.7	S 18	46.1	270	18.3	9.9	S 16	22.5	14.1	59.1	N 70	13 34	15 14	16 37		21 20	23 44	25 52		
13	18	47.5		46.7	284	47.2	10.1	16	08.4	14.2	59.0	68	14 12	15 32	16 45	18 57	21 44	23 54	25 53	
14	33	47.4		47.4	299	16.3	10.1	15	54.2	14.2	59.0	66	14 39	15 47	16 53	19 42	22 02	24 02	00 02	
15	48	47.3		48.0	313	45.4	10.3	15	40.0	14.3	59.0	64	14 59	15 59	16 59	20 11	22 16	24 08	00 08	
16	63	47.2		48.6	328	14.7	10.3	15	25.7	14.4	59.0	62	15 15	16 09	17 05	20 33	22 28	24 14	00 14	
17	78	47.1		49.2	342	44.0	10.5	15	11.3	14.5	59.0	60	15 29	16 18	17 10	20 51	22 38	24 19	00 19	
18	93	47.0	S 18	49.8	357	13.5	10.5	14	56.8	14.6	59.0	N 58	15 41	16 26	17 15	21 06	22 47	24 23	00 23	
19	108	46.8		50.5	11	43.0	10.6	14	42.2	14.6	58.9	56	15 51	16 33	17 19	21 18	22 55	24 27	00 27	
20	123	46.7		51.1	26	12.6	10.7	14	27.6	14.6	58.9	54	16 00	16 40	17 23	21 29	23 02	24 30	00 30	
21	138	46.6		51.7	40	42.3	10.8	14	13.0	14.8	58.9	52	16 08	16 45	17 27	21 39	23 08	24 33	00 33	
22	153	46.5		52.3	55	12.1	10.9	13	58.2	14.8	58.9	50	16 15	16 51	17 30	21 47	23 13	24 36	00 36	
23	168	46.4		52.9	69	42.0	11.0	13	43.4	14.9	58.9	45	16 31	17 02	17 38	22 05	23 25	24 42	00 42	
1700	183	46.3	S 18	53.6	84	12.0	11.1	S 13	28.5	15.0	58.8	N 40	16 43	17 12	17 45	22 20	23 35	24 46	00 46	
01	198	46.1		54.2	98	42.1	11.1	13	13.6	15.0	58.8	35	16 54	17 21	17 52	22 32	23 43	24 51	00 51	
02	213	46.0		54.8	113	12.2	11.2	12	58.6	15.0	58.8	30	17 04	17 29	17 58	22 43	23 50	24 54	00 54	
03	228	45.9		55.4	127	42.4	11.4	12	43.6	15.1	58.8	20	17 20	17 44	18 10	22 01	24 03	00 03	01 01	
04	243	45.8		56.0	142	12.8	11.4	12	28.5	15.2	58.8	N 10	17 35	17 57	18 22	22 17	24 13	00 13	01 06	
05	258	45.7		56.6	156	43.2	11.4	12	13.3	15.2	58.8	0	17 48	18 10	18 36	22 32	24 23	00 23	01 11	
06	273	45.5	S 18	57.2	171	13.6	11.6	S 11	58.1	15.3	58.7	S 10	18 02	18 25	18 51	22 46	24 33	00 33	01 16	
07	288	45.4		57.8	185	44.2	11.6	11	42.8	15.3	58.7	20	18 17	18 41	19 09	22 02	00 02	00 44	01 22	
08	303	45.3		58.5	200	14.8	11.7	11	27.5	15.3	58.7	30	18 34	19 01	19 32	22 19	00 19	00 56	01 28	
09	318	45.2		59.1	214	45.5	11.8	11	12.2	15.5	58.7	35	18 45	19 13	19 47	22 29	00 29	01 02	01 31	
10	333	45.0	18	59.7	229	16.3	11.9	10	56.7	15.4	58.7	40	18 56	19 27	20 05	00 05	00 41	01 10	01 35	
11	348	44.9	19	00.3	243	47.2	11.9	10	41.3	15.5	58.7	45	19 10	19 44	20 28	00 23	00 54	01 19	01 40	
12	3 44.8	S 19	00.9	258	18.1	12.0	S 10	25.8	15.5	58.6	S 50	19 27	20 06	20 59	00 45	01 11	01 30	01 45		
13	18	44.7		01.5	272	49.1	12.1	10	10.3	15.6	58.6	52	19 35	20 17	21 15	00 56	01 18	01 35	01 47	
14	33	44.5		02.1	287	20.2	12.2	9	54.7	15.6	58.6	54	19 44	20 29	21 35	01 08	01 27			

	ARIES	VENUS -3.4		MARS +0.6		JUPITER -1.3		SATURN +0.2		STARS			
G.M.T.	G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.	
d h	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "	o ' "		o ' "	o ' "	
18 00	56 51.7	199 40.6	S13 18.2	104 22.3	S19 28.1	213 34.3	S 8 31.7	24 15.7	N10 17.2	Acamar	315 42.7	S 40 25.4	
	71 54.2	214 40.1	19.2	119 22.9	27.5	228 36.3	31.8	39 18.4	17.2	Alchernar	335 50.3	S 57 23.4	
	86 56.6	229 39.5	20.3	134 23.5	27.0	243 38.3	32.0	54 21.0	17.1	Acrux	173 47.0	S 62 55.7	
	101 59.1	244 38.9	21.3	149 24.1	26.5	258 40.3	32.2	69 23.7	17.1	Adhara	255 38.1	S 28 55.5	
	117 01.6	259 38.3	22.4	164 24.7	25.9	273 42.2	32.4	84 26.3	17.0	Aldebaran	291 26.8	N 16 27.2	
05	132 04.0	274 37.8	23.4	179 25.3	25.4	288 44.2	32.6	99 28.9	16.9				
06	147 06.5	289 37.2	S13 24.4	194 25.9	S19 24.8	303 46.2	S 8 32.7	114 31.6	N10 16.9	Alioth	166 49.6	N 56 07.2	
07	162 08.9	304 36.6	25.5	209 26.5	24.3	318 48.2	32.9	129 34.2	16.8	Alkaid	153 24.9	N 49 27.6	
08	177 11.4	319 36.1	26.5	224 27.1	23.7	333 50.2	33.1	144 36.8	16.8	Al Na'ir	28 24.7	S 47 06.7	
09	192 13.9	334 35.5	27.6	239 27.8	23.2	348 52.2	33.3	159 39.5	16.7	Alnilam	276 19.4	S 1 13.0	
10	207 16.3	349 34.9	28.6	254 28.4	22.7	3 54.2	33.5	174 42.1	16.7	Alphard	218 28.3	S 8 31.4	
11	222 18.8	4 34.3	29.7	269 29.0	22.1	18 56.2	33.6	189 44.7	16.6				
12	237 21.3	19 33.8	S13 30.7	284 29.6	S19 21.6	33 58.2	S 8 33.8	204 47.4	N10 16.6	Alphecca	126 39.1	N 26 48.8	
13	252 23.7	34 33.2	31.8	299 30.2	21.0	49 00.2	34.0	219 50.0	16.5	Alpheratz	358 17.4	N 28 55.7	
14	267 26.2	49 32.6	32.8	314 30.8	20.5	64 02.2	34.2	234 52.7	16.5	Altair	62 40.5	N 8 47.2	
15	282 28.7	64 32.0	33.8	329 31.4	19.9	79 04.1	34.4	249 55.3	16.4	Ankaa	353 47.6	S 42 28.2	
16	297 31.1	79 31.5	34.9	344 32.0	19.4	94 06.1	34.5	264 57.9	16.4	Antares	113 07.0	S 26 22.1	
17	312 33.6	94 30.9	35.9	359 32.7	18.8	109 08.1	34.7	280 00.6	16.3				
18	327 36.0	109 30.3	S13 37.0	14 33.3	S19 18.3	124 10.1	S 8 34.9	295 03.2	N10 16.2	Arcturus	146 25.9	N 19 20.3	
19	342 38.5	124 29.7	38.0	29 33.9	17.8	139 12.1	35.1	310 05.8	16.2	Atria	108 39.0	S 68 58.7	
20	357 41.0	139 29.1	39.0	44 34.5	17.2	154 14.1	35.3	325 08.5	16.1	Avior	234 31.4	S 59 24.3	
21	12 43.4	154 28.6	40.1	59 35.1	16.7	169 16.1	35.4	340 11.1	16.1	Bellatrix	279 06.9	N 6 19.6	
22	27 45.9	169 28.0	41.1	74 35.7	16.1	184 18.1	35.6	355 13.7	16.0	Betelgeuse	271 36.6	N 7 24.4	
23	42 48.4	184 27.4	42.1	89 36.3	15.6	199 20.1	35.8	10 16.4	16.0				
19 00	57 50.8	199 26.8	S13 43.2	104 36.9	S19 15.0	214 22.1	S 8 36.0	25 19.0	N10 15.9	Canopus	264 10.3	S 52 40.4	
	72 53.3	214 26.2	44.2	119 37.6	14.5	229 24.1	36.1	40 21.7	15.9	Capella	281 22.6	N 45 58.3	
	87 55.8	229 25.7	45.2	134 38.2	13.9	244 26.1	36.3	55 24.3	15.8	Deneb	49 54.2	N 45 10.5	
	102 58.2	244 25.1	46.3	149 38.8	13.4	259 28.0	36.5	70 26.9	15.8	Denebola	183 07.2	N 14 44.4	
	118 00.7	259 24.5	47.3	164 39.4	12.8	274 30.0	36.7	85 29.6	15.7	Diphda	349 28.5	S 18 09.0	
05	133 03.1	274 23.9	48.3	179 40.0	12.3	289 32.0	36.9	100 32.2	15.7				
06	148 05.6	289 23.3	S13 49.4	194 40.6	S19 11.7	304 34.0	S 8 37.0	115 34.8	N10 15.6	Dubhe	194 31.7	N 61 54.6	
07	163 08.1	304 22.8	50.4	209 41.2	11.2	319 36.0	37.2	130 37.5	15.6	Elnath	278 53.8	N 28 35.2	
08	178 10.5	319 22.2	51.4	224 41.9	10.6	334 38.0	37.4	145 40.1	15.5	Eltanin	91 01.9	N 51 29.5	
09	193 13.0	334 21.6	52.5	239 42.5	10.1	349 40.0	37.6	160 42.7	15.4	Enif	34 19.4	N 9 44.2	
10	208 15.5	349 21.0	53.5	254 43.1	09.5	4 42.0	37.8	175 45.4	15.4	Fomalhaut	15 59.9	S 29 47.0	
11	223 17.9	4 20.4	54.5	269 43.7	09.0	19 44.0	37.9	190 48.0	15.3				
12	238 20.4	19 19.8	S13 55.5	284 44.3	S19 08.4	34 46.0	S 8 38.1	205 50.6	N10 15.3	Gacrux	172 38.3	S 56 56.4	
13	253 22.9	34 19.2	56.6	299 44.9	07.9	49 48.0	38.3	220 53.3	15.2	Gienah	176 26.4	S 17 22.4	
14	268 25.3	49 18.7	57.6	314 45.6	07.3	64 50.0	38.5	235 55.9	15.2	Hadar	149 35.5	S 60 13.6	
15	283 27.8	64 18.1	58.6	329 46.2	06.8	79 52.0	38.7	250 58.5	15.1	Hamal	328 37.6	N 23 19.5	
16	298 30.3	79 17.5	59.7	344 46.8	06.2	94 54.0	38.8	266 01.2	15.1	Kaus Aust.	84 27.7	S 34 24.2	
17	313 32.7	94 16.9	60.7	359 47.4	05.7	109 55.9	39.0	281 03.8	15.0				
18	328 35.2	109 16.3	S14 01.7	14 48.0	S19 05.1	124 57.9	S 8 39.2	296 06.4	N10 15.0	Kochab	137 19.2	N 74 16.5	
19	343 37.6	124 15.7	02.7	29 48.6	04.6	139 59.9	39.4	311 09.1	14.9	Markab	14 11.0	N 15 02.7	
20	358 40.1	139 15.1	03.7	44 49.2	04.0	155 01.9	39.5	326 11.7	14.9	Menkar	314 49.1	N 3 58.6	
21	13 42.6	154 14.5	04.8	59 49.9	03.5	170 03.9	39.7	341 14.3	14.8	Menkent	148 46.9	S 36 13.3	
22	28 45.0	169 13.9	05.8	74 50.5	02.9	185 05.9	39.9	356 17.0	14.8	Miaplacidus	221 46.9	S 69 35.1	
23	43 47.5	184 13.4	06.8	89 51.1	02.4	200 07.9	40.1	11 19.6	14.7				
20 00	58 50.0	199 12.8	S14 07.8	104 51.7	S19 01.8	215 09.9	S 8 40.3	26 22.2	N10 14.7	Mirfak	309 27.1	N 49 45.5	
	73 52.4	214 12.2	08.9	119 52.3	01.2	230 11.9	40.4	41 24.9	14.6	Nunki	76 39.2	S 26 20.3	
	88 54.9	229 11.6	09.9	134 52.9	00.7	245 13.9	40.6	56 27.5	14.6	Peacock	54 10.9	S 56 50.3	
	103 57.4	244 11.0	10.9	149 53.6	19 00.1	260 15.9	40.8	71 30.1	14.5	Pollux	244 07.6	N 28 06.1	
	118 59.8	259 10.4	11.9	164 54.2	18 59.6	275 17.9	41.0	86 32.8	14.5	Procyon	245 33.9	N 5 18.4	
04	134 02.3	274 09.8	12.9	179 54.8	59.0	290 19.9	41.1	101 35.4	14.4				
06	149 04.8	289 09.2	S14 13.9	194 55.4	S18 58.5	305 21.9	S 8 41.3	116 38.0	N10 14.4	Rasalhague	96 37.2	N 12 34.8	
07	164 07.2	304 08.6	15.0	209 56.0	57.9	320 23.9	41.5	131 40.7	14.3	Regulus	208 18.4	N 12 07.0	
08	179 09.7	319 08.0	16.0	224 56.6	57.3	335 25.9	41.7	146 43.3	14.2	Rigel	281 43.3	S 8 13.9	
09	194 12.1	334 07.4	17.0	239 57.3	56.8	350 27.9	41.9	161 45.9	14.2	Rigel Kent.	140 37.5	S 60 42.6	
10	209 14.6	349 06.8	18.0	254 57.9	56.2	5 29.8	42.0	176 48.6	14.1	Sabik	102 50.6	S 15 41.4	
11	224 17.1	4 06.2	19.0	269 58.5	55.7	20 31.8	42.2	191 51.2	14.1				
12	239 19.5	19 05.6	S14 20.0	284 59.1	S18 55.1	35 33.8	S 8 42.4	206 53.8	N10 14.0	Schedar	350 18.0	N 56 22.7	
13	254 22.0	34 05.0	21.1	299 59.7	54.6	50 35.8	42.6	221 56.5	14.0	Shaula	97 07.0	S 37 05.2	
14	269 24.5	49 04.4	22.1	315 00.3	54.0	65 37.8	42.7	236 59.1	13.9	Sirius	259 02.5	S 16 40.2	
15	284 26.9	64 03.8	23.1	330 01.0	53.4	80 39.8	42.9	252 01.7	13.9	Spica	159 06.2	S 11 00.2	
16	299 29.4	79 03.2	24.1	345 01.6	52.9	95 41.8	43.1	267 04.4	13.8	Suhail	223 16.7	S 43 18.2	
17	314 31.9	94 02.6	25.1	0 02.2	52.3	110 43.8	43.3	282 07.0	13.8				
18	329 34.3	109 02.0	S14 26.1	15 02.8	S18 51.8	125 45.8	S 8 43.5	297 09.6	N10 13.7	Vega	81 01.6	N 38 45.3	
19	344 36.8	124 01.4	27.1	30 03.4	51.2	140 47.8	43.6	312 12.3	13.7	Zuben'ubi	137 42.2	S 15 55.1	
20	359 39.3	139 00.8	28.1	45 04.1	50.6	155 49.8	43.8	327 14.9	13.6				
21	14 41.7	154 00.2	29.1	60 04.7	50.1	170 51.8	44.0	342 17.5	13.6				
22	29 44.2	168 59.6	30.1	75 05.3	49.5	185 53.8	44.2	357 20.2	13.5	Venus	141 36.0	h 43	
23	44 46.6	183 59.0	31.1	90 05.9	48.9	200 55.8	44.3	12 22.8	13.5	Mars	46 46.1	17 01	
											Jupiter	156 31.3	9 41
											Saturn	327 28.2	22 15
											Mer. Pass.		
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G.M.T.	SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise			
	G.H.A.	Dec.	G.H.A.	v	Dec.	d	H.P.		Naut.	Civil		18	19	20	21
d h	o	o	o	°	o	°	°	°	h m	h m	h m	h m	h m	h m	h m
1800 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23	183 43.3	S 19 08.2	72 34.5	12.8 S	7 17.0	15.9	58.4	N 72	07 13	08 52	■	14 21	13 46	13 08	12 17
	198 43.2	08.8	87 06.3	12.8	7 01.1	16.0	58.4	N 70	07 01	08 26	10 17	14 16	13 49	13 21	12 45
	213 43.0	09.4	101 38.1	12.8	6 45.1	15.9	58.4	68	06 51	08 07	09 31	14 12	13 52	13 31	13 06
	228 42.9	10.0	116 09.9	12.9	6 29.2	16.0	58.4	66	06 43	07 51	09 02	14 09	13 55	13 40	13 23
	243 42.8	10.6	130 41.8	13.0	6 13.2	16.0	58.3	64	06 36	07 38	08 39	14 06	13 57	13 48	13 37
	258 42.6	11.2	145 13.8	13.0	5 57.2	16.1	58.3	62	06 30	07 27	08 22	14 04	13 59	13 54	13 49
	273 42.5	S 19 11.8	159 45.8	13.1 S	5 41.1	16.0	58.3	60	06 24	07 17	08 07	14 01	14 00	14 00	13 59
	288 42.4	12.4	174 17.9	13.1	5 25.1	16.1	58.3	N 58	06 20	07 09	07 55	14 00	14 02	14 05	14 08
	303 42.2	13.0	188 50.0	13.1	5 09.0	16.1	58.3	56	06 15	07 01	07 44	13 58	14 03	14 09	14 16
	318 42.1	13.6	203 22.1	13.2	4 52.9	16.1	58.2	54	06 11	06 54	07 35	13 56	14 04	14 13	14 23
	333 42.0	14.2	217 54.3	13.2	4 36.8	16.1	58.2	52	06 07	06 48	07 26	13 55	14 06	14 17	14 29
	348 41.9	14.7	232 26.5	13.3	4 20.7	16.1	58.2	50	06 03	06 43	07 19	13 53	14 07	14 20	14 35
	3 41.7	S 19 15.3	246 58.8	13.3 S	4 04.6	16.1	58.2	45	05 55	06 31	07 03	13 51	14 09	14 27	14 47
	18 41.6	15.9	261 31.1	13.3	3 48.5	16.1	58.2	N 40	05 47	06 20	06 49	13 48	14 11	14 33	14 58
	33 41.5	16.5	276 03.4	13.4	3 32.4	16.1	58.1	35	05 40	06 11	06 38	13 46	14 12	14 39	15 07
	48 41.3	17.1	290 35.8	13.4	3 16.3	16.2	58.1	30	05 34	06 03	06 28	13 44	14 14	14 43	15 15
	63 41.2	17.7	305 08.2	13.5	3 00.1	16.1	58.1	20	05 21	05 48	06 11	13 41	14 16	14 51	15 28
	78 41.1	18.3	319 40.7	13.4	2 44.0	16.2	58.1	N 10	05 08	05 34	05 56	13 38	14 19	14 59	15 40
	93 40.9	S 19 18.9	334 13.1	13.6 S	2 27.8	16.1	58.1	0	04 54	05 20	05 42	13 36	14 21	15 06	15 52
	108 40.8	19.5	348 45.7	13.5	2 11.7	16.2	58.0	S 10	04 39	05 05	05 28	13 33	14 23	15 13	16 03
	123 40.7	20.1	3 18.2	13.6	1 55.5	16.1	58.0	20	04 20	04 48	05 12	13 30	14 25	15 20	16 15
	138 40.5	20.7	17 50.8	13.5	1 39.4	16.2	58.0	30	03 56	04 28	04 54	13 27	14 28	15 29	16 29
	153 40.4	21.3	32 23.3	13.7	1 23.2	16.1	58.0	35	03 41	04 16	04 44	13 25	14 30	15 33	16 38
168 40.2	21.9	46 56.0	13.6	1 07.1	16.1	58.0	40	03 23	04 01	04 32	13 23	14 31	15 39	16 47	
							45	02 59	03 43	04 17	13 20	14 33	15 46	16 58	
1900 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23	183 40.1	S 19 22.4	61 28.6	13.7 S	0 51.0	16.2	57.9	S 50	02 27	03 20	04 00	13 18	14 36	15 54	17 12
	198 40.0	23.0	76 01.3	13.6	0 34.8	16.1	57.9	52	02 10	03 09	03 52	13 16	14 37	15 58	17 18
	213 39.8	23.6	90 33.9	13.7	0 18.7	16.1	57.9	54	01 49	02 56	03 43	13 15	14 38	16 02	17 25
	228 39.7	24.2	105 06.6	13.8 S	0 02.6	16.1	57.9	56	01 20	02 41	03 32	13 13	14 40	16 06	17 33
	243 39.6	24.8	119 39.4	13.7 N	0 13.5	16.1	57.9	58	00 33	02 23	03 20	13 11	14 42	16 11	17 42
	258 39.4	25.4	134 12.1	13.7	0 29.6	16.1	57.8	S 60	///	02 01	03 06	13 09	14 43	16 17	17 53
	273 39.3	S 19 26.0	148 44.8	13.8 N	0 45.7	16.0	57.8								
	288 39.1	26.5	163 17.6	13.8	1 01.7	16.1	57.8	Lat.	Sun-set	Twilight		Moonset			
	303 39.0	27.1	177 50.4	13.8	1 17.8	16.0	57.8			Civil	Naut.	18	19	20	21
	318 38.9	27.7	192 23.2	13.8	1 33.8	16.0	57.8	o	h m	h m	h m	h m	h m	h m	h m
	333 38.7	28.3	206 56.0	13.8	1 49.8	16.0	57.7	N 72	■	14 38	16 17	25 51	01 51	04 07	06 35
	348 38.6	28.9	221 28.8	13.8	2 05.8	16.0	57.7	N 70	13 14	15 04	16 29	25 52	01 52	03 57	06 09
	3 38.4	S 19 29.4	236 01.6	13.8 N	2 21.8	16.0	57.7	68	13 59	15 23	16 38	25 53	01 53	03 49	05 50
	18 38.3	30.0	250 34.4	13.9	2 37.8	15.9	57.7	66	14 28	15 39	16 47	00 02	01 53	03 42	05 34
	33 38.2	30.6	265 07.3	13.8	2 53.7	15.9	57.7	64	14 51	15 52	16 54	00 08	01 54	03 37	05 22
	48 38.0	31.2	279 40.1	13.8	3 09.6	15.9	57.6	62	15 08	16 03	17 00	00 14	01 54	03 32	05 11
	63 37.9	31.8	294 12.9	13.9	3 25.5	15.9	57.6	60	15 23	16 13	17 06	00 19	01 54	03 28	05 02
	78 37.7	32.3	308 45.8	13.8	3 41.4	15.8	57.6	N 58	15 35	16 22	17 11	00 23	01 54	03 24	04 54
	93 37.6	S 19 32.9	323 18.6	13.9 N	3 57.2	15.8	57.6	56	15 46	16 29	17 15	00 27	01 55	03 21	04 48
	108 37.5	33.5	337 51.5	13.8	4 13.0	15.8	57.6	54	15 56	16 36	17 20	00 30	01 55	03 18	04 41
	123 37.3	34.1	352 24.3	13.8	4 28.8	15.7	57.5	52	16 04	16 42	17 24	00 33	01 55	03 16	04 36
	138 37.2	34.6	6 57.1	13.9	4 44.6	15.7	57.5	50	16 12	16 48	17 27	00 36	01 55	03 13	04 31
	153 37.0	35.2	21 30.0	13.8	5 00.3	15.7	57.5	45	16 28	17 00	17 36	00 42	01 56	03 08	04 20
168 36.9	35.8	36 02.8	13.8	5 16.0	15.6	57.5	N 40	16 41	17 10	17 43	00 46	01 56	03 04	04 12	
183 36.7	S 19 36.4	50 35.6	13.8 N	5 31.6	15.7	57.5	35	16 53	17 20	17 50	00 51	01 56	03 00	04 04	
198 36.6	36.9	65 08.4	13.8	5 47.3	15.5	57.4	30	17 02	17 28	17 57	00 54	01 56	02 57	03 58	
213 36.4	37.5	79 41.2	13.8	6 02.8	15.6	57.4	20	17 20	17 43	18 10	01 01	01 57	02 51	03 46	
228 36.3	38.1	94 14.0	13.8	6 18.4	15.5	57.4	N 10	17 35	17 57	18 23	01 06	01 57	02 47	03 37	
243 36.2	38.6	108 46.8	13.7	6 33.9	15.5	57.4	0	17 49	18 11	18 36	01 11	01 57	02 42	03 27	
258 36.0	39.2	123 19.5	13.8	6 49.4	15.4	57.4	S 10	18 03	18 26	18 52	01 16	01 57	02 37	03 18	
273 35.9	S 19 39.8	137 52.3	13.7 N	7 04.8	15.4	57.3	20	18 19	18 43	19 11	01 22	01 58	02 33	03 08	
288 35.7	40.3	152 25.0	13.7	7 20.2	15.4	57.3	30	18 37	19 03	19 35	01 28	01 58	02 27	02 57	
303 35.6	40.9	166 57.7	13.7	7 35.6	15.3	57.3	35	18 48	19 16	19 50	01 31	01 58	02 24	02 51	
318 35.4	41.5	181 30.4	13.7	7 50.9	15.2	57.3	40	19 00	19 31	20 09	01 35	01 58	02 20	02 44	
333 35.3	42.1	196 03.1	13.7	8 06.1	15.2	57.3	45	19 14	19 49	20 33	01 40	01 58	02 16	02 36	
348 35.1	42.6	210 35.8	13.6	8 21.3	15.2	57.2	S 50	19 32	20 12	21 06	01 45	01 58	02 12	02 26	
3 35.0	S 19 43.2	225 08.4	13.7 N	8 36.5	15.1	57.2	52	19 40	20 23	21 23	01 47	01 58	02 09	02 21	
18 34.8	43.7	239 41.1	13.6	8 51.6	15.1	57.2	54	19 49	20 36	21 45	01 50	01 59	02 07	02 16	
33 34.7	44.3	254 13.7	13.6	9 06.7	15.0	57.2	56	20 00	20 51	22 14	01 53	01 59	02 04	02 10	
48 34.5	44.9	268 46.3	13.5	9 21.7	15.0	57.2	58	20 12	21 10	23 07	01 56	01 59	02 01	02 04	
63 34.4	45.4	283 18.8	13.5	9 36.7	14.9	57.1	S 60	20 27	21 33	///	02 00	01 59	01 58	01 57	
78 34.2	46.0	297 51.3	13.5	9 51.6	14.9										

G.M.T.	ARIES			VENUS -3.4			MARS +0.6			JUPITER -1.3			SATURN +0.2			STARS		
	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h																		
21 00	59 49.1	198 58.4	S 14 32.2	105 06.5	S 18 48.4		215 57.8	S 8 44.5	27 25.4	N 10 13.4						Acamar	315 42.7	S 40 25.4
01	74 51.6	213 57.8	33.2	120 07.1	47.8		230 59.8	44.7	42 28.0	13.4						Alchernar	335 50.4	S 57 23.4
02	89 54.0	228 57.2	34.2	135 07.8	47.3		246 01.8	44.9	57 30.7	13.3						Acrux	173 46.9	S 62 55.7
03	104 56.5	243 56.6	35.2	150 08.4	46.7		261 03.8	45.1	72 33.3	13.3						Adhara	255 38.1	S 28 55.5
04	119 59.0	258 56.0	36.2	165 09.0	46.1		276 05.8	45.2	87 35.9	13.2						Aldebaran	291 26.8	N 16 27.2
05	135 01.4	273 55.4	37.2	180 09.6	45.6		291 07.8	45.4	102 38.6	13.2								
06	150 03.9	288 54.8	S 14 38.2	195 10.2	S 18 45.0		306 09.8	S 8 45.6	117 41.2	N 10 13.1						Alioth	166 49.5	N 56 07.2
07	165 06.4	303 54.2	39.2	210 10.9	44.4		321 11.8	45.8	132 43.8	13.1						Alkaid	153 24.9	N 49 27.6
08	180 08.8	318 53.6	40.2	225 11.5	43.9		336 13.8	45.9	147 46.5	13.0						Al Na'ir	28 24.7	S 47 06.7
09	195 11.3	333 53.0	41.2	240 12.1	43.3		351 15.8	46.1	162 49.1	13.0						Anilam	276 19.4	S 1 13.0
10	210 13.8	348 52.4	42.2	255 12.7	42.8		6 17.8	46.3	177 51.7	12.9						Alphard	218 28.3	S 8 31.4
11	225 16.2	3 51.8	43.2	270 13.3	42.2		21 19.7	46.5	192 54.3	12.9								
D 12	240 18.7	18 51.1	S 14 44.2	285 14.0	S 18 41.6		36 21.7	S 8 46.6	207 57.0	N 10 12.8						Alphecca	126 39.1	N 26 48.8
A 13	255 21.1	33 50.5	45.2	300 14.6	41.1		51 23.7	46.8	222 59.6	12.8						Alpheratz	358 17.5	N 28 55.7
Y 14	270 23.6	48 49.9	46.2	315 15.2	40.5		66 25.7	47.0	238 02.2	12.7						Altair	62 40.5	N 8 47.2
15	285 26.1	63 49.3	47.2	330 15.8	39.9		81 27.7	47.2	253 04.9	12.6						Ankaa	353 47.6	S 42 28.2
16	300 28.5	78 48.7	48.2	345 16.4	39.4		96 29.7	47.4	268 07.5	12.6						Antares	113 07.0	S 26 22.1
17	315 31.0	93 48.1	49.2	0 17.1	38.8		111 31.7	47.5	283 10.1	12.5								
18	330 33.5	108 47.5	S 14 50.2	15 17.7	S 18 38.2		126 33.7	S 8 47.7	298 12.8	N 10 12.5						Arcturus	146 25.9	N 19 20.2
19	345 35.9	123 46.9	51.1	30 18.3	37.7		141 35.7	47.9	313 15.4	12.4						Atria	108 39.0	S 68 58.6
20	0 38.4	138 46.3	52.1	45 18.9	37.1		156 37.7	48.1	328 18.0	12.4						Avior	234 31.4	S 59 24.3
21	15 40.9	153 45.6	53.1	60 19.6	36.5		171 39.7	48.2	343 20.6	12.3						Bellatrix	279 06.9	N 6 19.6
22	30 43.3	168 45.0	54.1	75 20.2	36.0		186 41.7	48.4	358 23.3	12.3						Betelgeuse	271 36.6	N 7 24.4
23	45 45.8	183 44.4	55.1	90 20.8	35.4		201 43.7	48.6	13 25.9	12.2								
22 00	60 48.3	198 43.8	S 14 56.1	105 21.4	S 18 34.8		216 45.7	S 8 48.8	28 28.5	N 10 12.2						Canopus	264 10.3	S 52 40.4
01	75 50.7	213 43.2	57.1	120 22.0	34.2		231 47.7	48.9	43 31.2	12.1						Capella	281 22.6	N 45 58.3
02	90 53.2	228 42.6	58.1	135 22.7	33.7		246 49.7	49.1	58 33.8	12.1						Deneb	49 54.2	N 45 10.5
03	105 55.6	243 42.0	59.1	150 23.3	33.1		261 51.7	49.3	73 36.4	12.0						Denebola	183 07.2	N 14 44.4
04	120 58.1	258 41.3	15 00.1	165 23.9	32.5		276 53.7	49.5	88 39.0	12.0						Diphda	349 28.5	S 18 09.0
05	136 00.6	273 40.7	01.1	180 24.5	32.0		291 55.7	49.6	103 41.7	11.9								
06	151 03.0	288 40.1	S 15 02.0	195 25.2	S 18 31.4		306 57.7	S 8 49.8	118 44.3	N 10 11.9						Dubhe	194 31.6	N 61 54.6
07	166 05.5	303 39.5	03.0	210 25.8	30.8		321 59.7	50.0	133 46.9	11.8						El Nath	278 53.8	N 28 35.2
08	181 08.0	318 38.9	04.0	225 26.4	30.3		337 01.7	50.2	148 49.6	11.8						Eltanin	91 01.9	N 51 29.5
09	196 10.4	333 38.3	05.0	240 27.0	29.7		352 03.7	50.3	163 52.2	11.7						Enif	34 19.4	N 9 44.2
10	211 12.9	348 37.6	06.0	255 27.6	29.1		7 05.7	50.5	178 54.8	11.7						Fomalhaut	15 59.9	S 29 47.1
11	226 15.4	3 37.0	07.0	270 28.3	28.5		22 07.7	50.7	193 57.4	11.6								
12	241 17.8	18 36.4	S 15 07.9	285 28.9	S 18 28.0		37 09.7	S 8 50.9	209 00.1	N 10 11.6						Gacrux	172 38.3	S 56 56.4
13	256 20.3	33 35.8	08.9	300 29.5	27.4		52 11.7	51.0	224 02.7	11.5						Gienah	176 26.4	S 17 22.4
14	271 22.7	48 35.1	09.9	315 30.1	26.8		67 13.7	51.2	239 05.3	11.5						Hadar	149 35.5	S 60 13.6
15	286 25.2	63 34.5	10.9	330 30.8	26.2		82 15.7	51.4	254 07.9	11.4						Hamal	328 37.6	N 23 19.5
16	301 27.7	78 33.9	11.9	345 31.4	25.7		97 17.7	51.6	269 10.6	11.4						Kaus Aust.	84 27.7	S 34 24.2
17	316 30.1	93 33.3	12.8	0 32.0	25.1		112 19.7	51.7	284 13.2	11.3								
18	331 32.6	108 32.7	S 15 13.8	15 32.6	S 18 24.5		127 21.7	S 8 51.9	299 15.8	N 10 11.3						Kochab	137 19.2	N 74 16.5
19	346 35.1	123 32.0	14.8	30 33.3	24.0		142 23.7	52.1	314 18.5	11.2						Markab	14 11.0	N 15 02.7
20	1 37.5	138 31.4	15.8	45 33.9	23.4		157 25.7	52.3	329 21.1	11.2						Menkar	314 49.1	N 3 58.6
21	16 40.0	153 30.8	16.8	60 34.5	22.8		172 27.7	52.4	344 23.7	11.1						Menkent	148 46.8	S 36 13.3
22	31 42.5	168 30.2	17.7	75 35.1	22.2		187 29.7	52.6	359 26.3	11.1						Miaplacidus	221 46.9	S 69 35.1
23	46 44.1	183 29.5	18.7	90 35.8	21.6		202 31.7	52.8	14 29.0	11.0								
23 00	61 47.4	198 28.9	S 15 19.7	105 36.4	S 18 21.1		217 33.7	S 8 53.0	29 31.6	N 10 11.0						Mirfak	309 27.1	N 49 45.5
01	76 49.8	213 28.3	20.7	120 37.0	20.5		232 35.7	53.1	44 34.2	10.9						Nunki	76 39.2	S 26 20.3
02	91 52.3	228 27.6	21.6	135 37.6	19.9		247 37.7	53.3	59 36.8	10.9						Peacock	54 11.0	S 56 50.3
03	106 54.8	243 27.0	22.6	150 38.3	19.3		262 39.7	53.5	74 39.5	10.8						Pollux	244 07.6	N 28 06.1
04	121 57.2	258 26.4	23.6	165 38.9	18.8		277 41.7	53.7	89 42.1	10.8						Procyon	245 33.9	N 5 18.4
05	136 59.7	273 25.8	24.6	180 39.5	18.2		292 43.7	53.8	104 44.7	10.7								
06	152 02.2	288 25.1	S 15 25.5	195 40.1	S 18 17.6		307 45.7	S 8 54.0	119 47.3	N 10 10.7						Rasalhague	96 37.2	N 12 34.8
07	167 04.6	303 24.5	26.5	210 40.8	17.0		322 47.7	54.2	134 50.0	10.6						Regulus	208 18.4	N 12 06.9
08	182 07.1	318 23.9	27.5	225 41.4	16.5		337 49.7	54.4	149 52.6	10.6						Rigel	281 43.3	S 8 13.9
09	197 09.6	333 23.2	28.4	240 42.0	15.9		352 51.7	54.5	164 55.2	10.5						Rigel Kent.	140 37.5	S 60 42.6
10	212 12.0	348 22.6	29.4	255 42.6	15.3		7 53.7	54.7	179 57.8	10.5						Sabik	102 50.6	S 15 41.4
11	227 14.5	3 22.0	30.4	270 43.3	14.7		22 55.7	54.9	195 00.5	10.4								
12	242 17.0	18 21.3	S 15 31.3	285 43.9	S 18 14.1		37 57.7	S 8 55.1	210 03.1	N 10 10.4						Schedar	350 18.0	N 56 22.7
13	257 19.4	33 20.7	32.3	300 44.5	13.6		52 59.7	55.2	225 05.7	10.3						Shaula	97 07.0	S 37 05.1
14	272 21.9	48 20.1	33.3	315 45.1	13.0		68 01.7	55.4	240 08.3	10.3						Sirius	259 02.4	S 16 40.2
15	287 24.3	63 19.4	34.2	330 45.8	12.4		83 03.7	55.6	255 11.0	10.3						Spica	159 06.2	S 11 00.2
16	302 26.8	78 18.8	35.2	345 46.4	11.8		98 05.7	55.8	270 13.6	10.2						Suhail	223 16.7	S 43 18.3
17	317 29.3	93 18.2	36.2	0 47.0	11.2		113 07.7	55.9	285 16.2	10.2								
18	332 31.7	108 17.5	S 15 37.1	15 47.6	S 18 10.7		128 09.7	S 8 56.1	300 18.8	N 10 10.1						Vega	81 01.6	N 38 45.3
19	347 34.2	123 16.9	38.1	30 48.3	10.1		143 11.7	56.3	315 21.5	10.1						Zuben'ubi	137 42.2	S 15 55.1
20	2 36.7	138 16.3	39.0	45 48.9	09.5		158 13.7	56.4	330 24.1	10.0								
21	17 39.1	153 15.6	40.0	60 49.5	08.9		173 15.7	56.6	345 26.7	10.0								
22	32 41.6	168 15.0	41															

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise									
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	21	22	23	24					
d	h	°	'	°	'	°	'	'	h	m	h	m	h	m	h	m	h	m			
21	00	183	33.2	S 19	49.9	39	38.2	13.3	N 11	34.5	14.4	57.0	N 70	07 10	08 38	10 43	12 45	11 34	□	□	
	01	198	33.0		50.5	54	10.5	13.3	11	48.9	14.4	57.0	68	06 59	08 16	09 46	13 06	12 27	□	□	
	02	213	32.9		51.0	68	42.8	13.2	12	03.3	14.4	56.9	66	06 51	07 59	09 13	13 23	13 00	12 09	□	
	03	228	32.7		51.6	83	15.0	13.2	12	17.7	14.2	56.9	64	06 43	07 45	08 49	13 37	13 25	13 05	□	
	04	243	32.5		52.1	97	47.2	13.1	12	31.9	14.2	56.9	62	06 36	07 33	08 30	13 49	13 44	13 39	13 32	
	05	258	32.4		52.7	112	19.3	13.2	12	46.1	14.2	56.9	60	06 30	07 23	08 15	13 59	14 00	14 03	14 12	
06	273	32.2	S 19	53.3	126	51.5	13.0	N 13	00.3	14.0	56.9	N 58	06 25	07 14	08 01	14 08	14 14	14 23	14 40		
07	288	32.1		53.8	141	23.5	13.1	13	14.3	14.0	56.8		56	06 20	07 06	07 50	14 16	14 26	14 40	15 02	
08	303	31.9		54.4	155	55.6	13.0	13	28.3	13.9	56.8		54	06 15	06 59	07 40	14 23	14 36	14 54	15 20	
F	09	318	31.8		54.9	170	27.6	12.9	13	42.2	13.9	56.8	52	06 11	06 53	07 31	14 29	14 45	15 06	15 35	
R	10	333	31.6		55.5	184	59.5	12.9	13	56.1	13.8	56.8	50	06 07	06 47	07 23	14 35	14 53	15 17	15 48	
I	11	348	31.5		56.0	199	31.4	12.9	14	09.9	13.7	56.8	45	05 58	06 34	07 07	14 47	15 11	15 40	16 16	
D	12	3	31.3	S 19	56.6	214	03.3	12.8	N 14	23.6	13.6	56.7	N 40	05 50	06 23	06 53	14 58	15 26	15 58	16 37	
A	13	18	31.1		57.1	228	35.1	12.8	14	37.2	13.6	56.7		35	05 43	06 14	06 41	15 07	15 38	16 14	16 55
Y	14	33	31.0		57.7	243	06.9	12.7	14	50.8	13.4	56.7		30	05 36	06 05	06 30	15 15	15 49	16 27	17 11
15	48	30.8		58.2	257	38.6	12.7	15	04.2	13.4	56.7	20	05 23	05 49	06 13	15 28	16 08	16 50	17 37		
16	63	30.7		58.8	272	10.3	12.7	15	17.6	13.4	56.7	N 10	05 09	05 35	05 57	15 40	16 24	17 11	18 00		
17	78	30.5		59.3	286	42.0	12.6	15	31.0	13.2	56.6	0	04 55	05 21	05 42	15 52	16 39	17 29	18 22		
18	93	30.3	S 19	59.9	301	13.6	12.5	N 15	44.2	13.2	56.6	S 10	04 39	05 05	05 28	16 03	16 55	17 48	18 43		
19	108	30.2		60.4	315	45.1	12.5	15	57.4	13.0	56.6		20	04 19	04 48	05 12	16 15	17 12	18 09	19 06	
20	123	30.0		60.9	330	16.6	12.5	16	10.4	13.0	56.6		30	03 55	04 27	04 53	16 29	17 31	18 33	19 33	
21	138	29.9		61.5	344	48.1	12.4	16	23.4	12.9	56.6	35	03 39	04 14	04 42	16 38	17 42	18 47	19 49		
22	153	29.7		62.0	359	19.5	12.4	16	36.3	12.9	56.5	40	03 20	03 59	04 30	16 47	17 55	19 03	20 08		
23	168	29.5		62.6	13	50.9	12.3	16	49.2	12.7	56.5	45	02 55	03 40	04 15	16 58	18 11	19 23	20 30		
22	00	183	29.4	S 20	03.1	28	22.2	12.3	N 17	01.9	12.7	56.5	S 50	02 21	03 16	03 57	17 12	18 30	19 47	20 59	
	01	198	29.2		03.7	42	53.5	12.2	17	14.6	12.5	56.5		52	02 03	03 04	03 48	17 18	18 39	19 59	21 13
	02	213	29.1		04.2	57	24.7	12.1	17	27.1	12.5	56.5		54	01 40	02 51	03 38	17 25	18 50	20 13	21 30
	03	228	28.9		04.7	71	55.8	12.1	17	39.6	12.4	56.4	56	01 08	02 35	03 27	17 33	19 01	20 29	21 50	
	04	243	28.7		05.3	86	26.9	12.1	17	52.0	12.2	56.4	58	///	02 16	03 15	17 42	19 15	20 48	22 14	
	05	258	28.6		05.8	100	58.0	12.0	18	04.2	12.2	56.4	S 60	///	01 51	03 00	17 53	19 31	21 11	22 48	
06	273	28.4	S 20	06.4	115	29.0	12.0	N 18	16.4	12.1	56.4	Lat.	Sun-set	Twilight		Moonset					
07	288	28.3		06.9	130	00.0	11.9	18	28.5	12.0	56.4					Civil	Naut.	21	22	23	24
08	303	28.1		07.4	144	30.9	11.8	18	40.5	11.9	56.3										
S	09	318	27.9		08.0	159	01.7	11.8	18	52.4	11.9	56.3									
A	10	333	27.8		08.5	173	32.5	11.7	19	04.3	11.7	56.3									
T	11	348	27.6		09.0	188	03.2	11.7	19	16.0	11.6	56.3									
R	12	3	27.4	S 20	09.6	202	33.9	11.6	N 19	27.6	11.5	56.3									
D	13	18	27.3		10.1	217	04.5	11.6	19	39.1	11.4	56.2	N 70	12 49	14 54	16 21	06 09	08 59	□	□	
A	14	33	27.1		10.7	231	35.1	11.5	19	50.5	11.3	56.2	68	13 46	15 15	16 32	05 50	08 07	□	□	
Y	15	48	26.9		11.2	246	05.6	11.5	20	01.8	11.2	56.2	66	14 19	15 32	16 41	05 34	07 36	10 10	□	
16	63	26.8		11.7	260	36.1	11.4	20	13.0	11.1	56.2	64	14 43	15 46	16 49	05 22	07 12	09 15	□		
17	78	26.6		12.2	275	06.5	11.4	20	24.1	11.0	56.2	62	15 02	15 58	16 56	05 11	06 54	08 42	10 37		
18	93	26.4	S 20	12.8	289	36.9	11.3	N 20	35.1	10.9	56.1	60	15 17	16 08	17 02	05 02	06 39	08 18	09 57		
19	108	26.3		13.3	304	07.2	11.2	20	46.0	10.8	56.1	N 58	15 30	16 17	17 07	04 54	06 26	07 59	09 29		
20	123	26.1		13.8	318	37.4	11.2	20	56.8	10.6	56.1	56	15 42	16 25	17 12	04 48	06 15	07 43	09 08		
21	138	25.9		14.4	333	07.6	11.1	21	07.4	10.6	56.1	54	15 52	16 32	17 17	04 41	06 06	07 30	08 50		
22	153	25.8		14.9	347	37.7	11.1	21	18.0	10.4	56.1	52	16 00	16 39	17 21	04 36	05 57	07 18	08 35		
23	168	25.6		15.4	2	07.8	11.0	21	28.4	10.4	56.0	50	16 08	16 45	17 25	04 31	05 49	07 07	08 22		
23	00	183	25.4	S 20	16.0	16	37.8	11.0	N 21	38.8	10.2	56.0	45	16 25	16 58	17 34	04 20	05 33	06 46	07 56	
	01	198	25.2		16.5	31	07.8	10.9	21	49.0	10.1	56.0	N 40	16 39	17 09	17 42	04 12	05 20	06 28	07 35	
	02	213	25.1		17.0	45	37.7	10.9	21	59.1	10.0	56.0	35	16 51	17 18	17 49	04 04	05 09	06 13	07 17	
	03	228	24.9		17.5	60	07.6	10.8	22	09.1	9.9	56.0	30	17 01	17 27	17 56	03 58	04 59	06 01	07 02	
	04	243	24.7		18.1	74	37.4	10.7	22	19.0	9.8	55.9	20	17 19	17 43	18 10	03 46	04 42	05 39	06 37	
	05	258	24.6		18.6	89	07.1	10.7	22	28.8	9.6	55.9	N 10	17 35	17 57	18 23	03 37	04 28	05 21	06 15	
06	273	24.4	S 20	19.1	103	36.8	10.7	N 22	38.4	9.5	55.9	0	17 50	18 12	18 37	03 27	04 14	05 03	05 54		
07	288	24.2		19.6	118	06.5	10.5	22	47.9	9.4	55.9	S 10	18 05	18 27	18 54	03 18	04 01	04 46	05 34		
08	303	24.1		20.2	132	36.0	10.6	22	57.3	9.3	55.9	20	18 21	18 45	19 13	03 08	03 46	04 27	05 12		
S	09	318	23.9		20.7	147	05.6	10.5	23	06.6	9.2	55.8	30	18 39	19 06	19 38	02 57	03 30	04 06	04 47	
U	10	333	23.7		21.2	161	35.1	10.4	23	15.8	9.1	55.8	35	18 50	19 19	19 54	02 51	03 21	03 54	04 33	
N	11	348	23.5		21.7	176	04.5	10.4	23	24.9	8.9	55.8	40	19 03	19 34	20 13	02 44	03 10	03 40	04 16	
D	12	3	23.4	S 20	22.2	190	33.9	10.3	N 23	33.8	8.8	55.8	45	19 18	19 53	20 38	02 36	02 57	03 23	03 55	
A	13	18	23.2		22.8	205	03.2	10.3	23	42.6	8.7	55.8	S 50	19 37	20 17	21 13	02 26	02 42	03 03	03 30	
Y	14	33	23.0		23.3																

G.M.T.		ARIES		VENUS -3.4		MARS +0.7		JUPITER -1.3		SATURN +0.2		STARS		
		G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d	h													
MONDAY	24 00	62 46.5	198 13.7 S 15 42.9	105 51.4 S 18 07.2	218 21.7 S 8 57.1	30 34.6 N 10 09.8	Acamar	315 42.7	S 40 25.4					
	01	77 49.0	213 13.1 43.8	120 52.0 06.6	233 23.7 57.3	45 37.2 09.8	Achernar	335 50.4	S 57 23.4					
	02	92 51.5	228 12.4 44.8	135 52.7 06.0	248 25.7 57.5	60 39.8 09.7	Acrux	173 46.9	S 62 55.7					
	03	107 53.9	243 11.8 45.7	150 53.3 05.4	263 27.7 57.7	75 42.5 09.7	Adhara	255 38.1	S 28 55.5					
	04	122 56.4	258 11.2 46.7	165 53.9 04.8	278 29.7 57.8	90 45.1 09.6	Aldebaran	291 26.8	N 16 27.2					
	05	137 58.8	273 10.5 47.7	180 54.6 04.2	293 31.7 58.0	105 47.7 09.6								
	06	153 01.3	288 09.9 S 15 48.6	195 55.2 S 18 03.7	308 33.7 S 8 58.2	120 50.3 N 10 09.5	Alioth	166 49.5	N 56 07.1					
	07	168 03.8	303 09.2 49.6	210 55.8 03.1	323 35.7 58.4	135 52.9 09.5	Alkaid	153 24.9	N 49 27.6					
	08	183 06.2	318 08.6 50.5	225 56.4 02.5	338 37.7 58.5	150 55.6 09.4	Al Na'ir	28 24.7	S 47 06.7					
	09	198 08.7	333 07.9 51.5	240 57.1 01.9	353 39.7 58.7	165 58.2 09.4	Alnilam	276 19.4	S 1 13.0					
	10	213 11.2	348 07.3 52.4	255 57.7 01.3	8 41.7 58.9	181 00.8 09.3	Alphard	218 28.3	S 8 31.4					
	11	228 13.6	3 06.7 53.4	270 58.3 00.7	23 43.7 59.0	196 03.4 09.3								
	12	243 16.1	18 06.0 S 15 54.3	285 59.0 S 18 00.2	38 45.8 S 8 59.2	211 06.1 N 10 09.2	Alphecca	126 39.1	N 26 48.8					
	13	258 18.6	33 05.4 55.3	300 59.6 17 59.6	53 47.8 59.4	226 08.7 09.2	Alpheratz	358 17.5	N 28 55.7					
	14	273 21.0	48 04.7 56.2	316 00.2 59.0	68 49.8 59.6	241 11.3 09.1	Altair	62 40.5	N 8 47.2					
	15	288 23.5	63 04.1 57.2	331 00.8 58.4	83 51.8 59.7	256 13.9 09.1	Ankaa	353 47.6	S 42 28.3					
	16	303 26.0	78 03.4 58.1	346 01.5 57.8	98 53.8 59.9	271 16.5 09.1	Antares	113 07.0	S 26 22.1					
	17	318 28.4	93 02.8 59.1	1 02.1 57.2	113 55.8 9 00.1	286 19.2 09.0								
	18	333 30.9	108 02.1 S 16 00.0	16 02.7 S 17 56.6	128 57.8 S 9 00.3	301 21.8 N 10 09.0	Arcturus	146 25.9	N 19 20.2					
	19	348 33.3	123 01.5 00.9	31 03.4 56.0	143 59.8 00.4	316 24.4 08.9	Atria	108 39.0	S 68 58.6					
	20	3 35.8	138 00.8 01.9	46 04.0 55.4	159 01.8 00.6	331 27.0 08.9	Avior	234 31.3	S 59 24.3					
	21	18 38.3	153 00.2 02.8	61 04.6 54.9	174 03.8 00.8	346 29.7 08.8	Bellatrix	279 06.9	N 6 19.6					
	22	33 40.7	167 59.5 03.8	76 05.2 54.3	189 05.8 00.9	1 32.3 08.8	Betelgeuse	271 36.5	N 7 24.3					
	23	48 43.2	182 58.9 04.7	91 05.9 53.7	204 07.8 01.1	16 34.9 08.7								
TUESDAY	25 00	63 45.7	197 58.2 S 16 05.7	106 06.5 S 17 53.1	219 09.8 S 9 01.3	31 37.5 N 10 08.7	Canopus	264 10.3	S 52 40.4					
	01	78 48.1	212 57.6 06.6	121 07.1 52.5	234 11.8 01.5	46 40.1 08.6	Capella	281 22.6	N 45 58.3					
	02	93 50.6	227 56.9 07.5	136 07.8 51.9	249 13.8 01.6	61 42.8 08.6	Deneb	49 54.2	N 45 10.5					
	03	108 53.1	242 56.3 08.5	151 08.4 51.3	264 15.8 01.8	76 45.4 08.5	Denebola	183 07.2	N 14 44.4					
	04	123 55.5	257 55.6 09.4	166 09.0 50.7	279 17.8 02.0	91 48.0 08.5	Diphda	349 28.5	S 18 09.1					
	05	138 58.0	272 55.0 10.4	181 09.7 50.1	294 19.8 02.2	106 50.6 08.4								
	06	154 00.4	287 54.3 S 16 11.3	196 10.3 S 17 49.5	309 21.8 S 9 02.3	121 53.2 N 10 08.4	Dubhe	194 31.6	N 61 54.6					
	07	169 02.9	302 53.7 12.2	211 10.9 49.0	324 23.8 02.5	136 55.9 08.3	Elnath	278 53.8	N 28 35.2					
	08	184 05.4	317 53.0 13.2	226 11.6 48.4	339 25.8 02.7	151 58.5 08.3	Eltanin	91 01.9	N 51 29.5					
	09	199 07.8	332 52.4 14.1	241 12.2 47.8	354 27.8 02.8	167 01.1 08.2	Enif	34 19.4	N 9 44.2					
	10	214 10.3	347 51.7 15.0	256 12.8 47.2	9 29.8 03.0	182 03.7 08.2	Fomalhaut	16 00.0	S 29 47.1					
	11	229 12.8	2 51.0 16.0	271 13.5 46.6	24 31.9 03.2	197 06.3 08.2								
	12	244 15.2	17 50.4 S 16 16.9	286 14.1 S 17 46.0	39 33.9 S 9 03.4	212 09.0 N 10 08.1	Gacrux	172 38.2	S 56 56.4					
	13	259 17.7	32 49.7 17.8	301 14.7 45.4	54 35.9 03.5	227 11.6 08.1	Gienah	176 26.4	S 17 22.4					
	14	274 20.2	47 49.1 18.8	316 15.4 44.8	69 37.9 03.7	242 14.2 08.0	Hadar	149 35.5	S 60 13.6					
	15	289 22.6	62 48.4 19.7	331 16.0 44.2	84 39.9 03.9	257 16.8 08.0	Hamal	328 37.6	N 23 19.5					
	16	304 25.1	77 47.7 20.6	346 16.6 43.6	99 41.9 04.0	272 19.4 07.9	Kaus Aust.	84 27.7	S 34 24.2					
	17	319 27.6	92 47.1 21.5	1 17.3 43.0	114 43.9 04.2	287 22.1 07.9								
	18	334 30.0	107 46.4 S 16 22.5	16 17.9 S 17 42.4	129 45.9 S 9 04.4	302 24.7 N 10 07.8	Kochab	137 19.2	N 74 16.5					
	19	349 32.5	122 45.8 23.4	31 18.5 41.8	144 47.9 04.6	317 27.3 07.8	Markab	14 11.0	N 15 02.7					
	20	4 34.9	137 45.1 24.3	46 19.2 41.2	159 49.9 04.7	332 29.9 07.7	Menkar	314 49.1	N 3 58.6					
	21	19 37.4	152 44.4 25.3	61 19.8 40.6	174 51.9 04.9	347 32.5 07.7	Menkent	148 46.8	S 36 13.3					
	22	34 39.9	167 43.8 26.2	76 20.4 40.1	189 53.9 05.1	2 35.2 07.6	Miaplacidus	221 46.8	S 69 35.2					
	23	49 42.3	182 43.1 27.1	91 21.1 39.5	204 55.9 05.2	17 37.8 07.6								
WEDNESDAY	26 00	64 44.8	197 42.5 S 16 28.0	106 21.7 S 17 38.9	219 57.9 S 9 05.4	32 40.4 N 10 07.6	Mirfak	309 27.1	N 49 45.5					
	01	79 47.3	212 41.8 29.0	121 22.3 38.3	234 59.9 05.6	47 43.0 07.5	Nunki	76 39.3	S 26 20.3					
	02	94 49.7	227 41.1 29.9	136 23.0 37.7	250 02.0 05.8	62 45.6 07.5	Peacock	54 11.0	S 56 50.3					
	03	109 52.2	242 40.5 30.8	151 23.6 37.1	265 04.0 05.9	77 48.2 07.4	Pollux	244 07.6	N 28 06.1					
	04	124 54.7	257 39.8 31.7	166 24.2 36.5	280 06.0 06.1	92 50.9 07.4	Procyon	245 33.8	N 5 18.4					
	05	139 57.1	272 39.1 32.6	181 24.9 35.9	295 08.0 06.3	107 53.5 07.3								
	06	154 59.6	287 38.5 S 16 33.6	196 25.5 S 17 35.3	310 10.0 S 9 06.4	122 56.1 N 10 07.3	Rasalhague	96 37.2	N 12 34.8					
	07	170 02.1	302 37.8 34.5	211 26.1 34.7	325 12.0 06.6	137 58.7 07.2	Regulus	208 18.3	N 12 06.9					
	08	185 04.5	317 37.1 35.4	226 26.8 34.1	340 14.0 06.8	153 01.3 07.2	Rigel	281 43.3	S 8 13.9					
	09	200 07.0	332 36.5 36.3	241 27.4 33.5	355 16.0 06.9	168 04.0 07.1	Rigel Kent.	140 37.5	S 60 42.5					
	10	215 09.4	347 35.8 37.2	256 28.0 32.9	10 18.0 07.1	183 06.6 07.1	Sabik	102 50.6	S 15 41.4					
	11	230 11.9	2 35.1 38.1	271 28.7 32.3	25 20.0 07.3	198 09.2 07.0								
	12	245 14.4	17 34.4 S 16 39.1	286 29.3 S 17 31.7	40 22.0 S 9 07.5	213 11.8 N 10 07.0	Schedar	350 18.0	N 56 22.7					
	13	260 16.8	32 33.8 40.0	301 29.9 31.1	55 24.0 07.6	228 14.4 07.0	Shaula	97 07.0	S 37 05.1					
	14	275 19.3	47 33.1 40.9	316 30.6 30.5	70 26.0 07.8	243 17.0 06.9	Sirius	259 02.4	S 16 40.2					
	15	290 21.8	62 32.4 41.8	331 31.2 29.9	85 28.0 08.0	258 19.7 06.9	Spica	159 06.2	S 11 00.2					
	16	305 24.2	77 31.8 42.7	346 31.9 29.3	100 30.1 08.1	273 22.3 06.8	Suhail	223 16.6	S 43 18.3					
	17	320 26.7	92 31.1 43.6	1 32.5 28.7	115 32.1 08.3	288 24.9 06.8								
	18	335 29.2	107 30.4 S 16 44.5	16 33.1 S 17 28.1	130 34.1 S 9 08.5	303 27.5 N 10 06.7	Vega	81 01.6	N 38 45.3					
	19	350 31.6	122 29.7 45.4	31 33.8 27.5	145 36.1 08.6	318 30.1 06.7	Zuben'ubi	137 42.2	S 15 55.1					
	20	5 34.1	137 29.1 46.3	46 34.4 26.9	160 38.1 08.8	333 32.7 06.6								
	21	20 36.6	152 28.4 47.3	61 35.0 26.3	175 40.1 09.0	348 35.4 06.6								
	22	35 39.0	167 27.7 48.2	76 35.7 25.7	190 42.1 09.2	3 38.0 06.5	Venus	134 12.5	10 49					
	23	50 41.5	182 27.0 49.1	91 36.3 25.1	205 44.1 09.3	18 40.6 06.5	Mars	42 20.8	16 55					
Mer. Pass. 19 41.7												Jupiter	155 24.1	9 22
v -0.7 d 0.9												Saturn	327 51.8	21 50
v 0.6 d 0.6												S.H.A.		Mer. Pass.
v 2.0 d 0.2												h m		
v 2.6 d 0.0												o /		

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise							
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	24	25	26	27			
d	h	o	'	o	'	o	'	o	'	h	m	h	m	h	m	h	m		
24 MON DAY	00	183	21.3	S 20	28.4	4 22.5	9.7	N 25	11.0	7.3	55.5	N 70	07 19	08 49	11 26				
	01	198	21.1		28.9	18 51.2	9.7	25	18.3	7.1	55.5	68	07 07	08 26	10 02				
	02	213	20.9		29.4	33 19.9	9.7	25	25.4	7.0	55.5	66	06 58	08 07	09 24				
	03	228	20.7		30.0	47 48.6	9.6	25	32.4	6.9	55.5	64	06 49	07 53	08 58				
	04	243	20.5		30.5	62 17.2	9.6	25	39.3	6.7	55.5	62	06 42	07 40	08 38	13 32		16 04	
	05	258	20.4		31.0	76 45.8	9.5	25	46.0	6.6	55.4	60	06 36	07 29	08 22	14 12	14 35	15 27	16 49
	06	273	20.2	S 20	31.5	91 14.3	9.5	N 25	52.6	6.4	55.4	N 58	06 30	07 20	08 08	14 40	15 11	16 04	17 18
	07	288	20.0		32.0	105 42.8	9.4	25	59.0	6.3	55.4	56	06 25	07 11	07 56	15 02	15 37	16 31	17 40
	08	303	19.8		32.5	120 11.3	9.4	26	05.3	6.2	55.4	54	06 20	07 04	07 45	15 20	15 58	16 52	17 59
	09	318	19.6		33.0	134 39.7	9.4	26	11.5	6.0	55.4	52	06 15	06 57	07 36	15 35	16 16	17 09	18 14
	10	333	19.5		33.5	149 08.1	9.3	26	17.5	5.9	55.4	50	06 11	06 51	07 28	15 48	16 30	17 24	18 28
	11	348	19.3		34.0	163 36.4	9.3	26	23.4	5.8	55.3	45	06 02	06 38	07 10	16 16	17 00	17 54	18 55
	12	3 19.1	S 20	34.5	178 04.7	9.3	N 26	29.2	5.6	55.3	N 40	05 53	06 26	06 56	16 37	17 24	18 18	19 17	
	13	18 18.9		35.0	192 33.0	9.3	26	34.8	5.5	55.3	35	05 45	06 16	06 44	16 55	17 43	18 37	19 34	
	14	33 18.7		35.5	207 01.3	9.2	26	40.3	5.3	55.3	30	05 38	06 07	06 33	17 11	18 00	18 53	19 50	
	15	48 18.6		36.0	221 29.5	9.2	26	45.6	5.2	55.3	20	05 24	05 51	06 15	17 37	18 28	19 21	20 16	
	16	63 18.4		36.5	235 57.7	9.2	26	50.8	5.1	55.2	N 10	05 10	05 36	05 59	18 00	18 52	19 45	20 38	
	17	78 18.2		37.0	250 25.9	9.1	26	55.9	4.9	55.2	0	04 56	05 21	05 43	18 22	19 15	20 08	20 59	
	18	93 18.0	S 20	37.5	264 54.0	9.1	N 27	00.8	4.8	55.2	S 10	04 39	05 05	05 28	18 43	19 37	20 30	21 19	
	19	108 17.8		38.0	279 22.1	9.1	27	05.6	4.6	55.2	20	04 19	04 47	05 11	19 06	20 02	20 54	21 42	
	20	123 17.6		38.5	293 50.2	9.0	27	10.2	4.5	55.2	30	03 54	04 26	04 52	19 33	20 30	21 22	22 07	
	21	138 17.4		39.0	308 18.2	9.1	27	14.7	4.3	55.2	35	03 37	04 12	04 41	19 49	20 47	21 38	22 22	
	22	153 17.3		39.5	322 46.3	9.0	27	19.0	4.2	55.1	40	03 17	03 57	04 28	20 08	21 07	21 57	22 40	
	23	168 17.1		4.0	337 14.3	9.0	27	23.2	4.1	55.1	45	02 52	03 37	04 13	20 30	21 30	22 21	23 01	
25 TUE SDAY	00	183	16.9	S 20	40.5	351 42.3	9.0	N 27	27.3	3.9	55.1	S 50	02 16	03 13	03 54	20 59	22 01	22 50	23 27
	01	198	16.7		41.0	6 10.3	8.9	27	31.2	3.7	55.1	52	01 56	03 00	03 45	21 13	22 16	23 05	23 40
	02	213	16.5		41.5	20 38.2	8.9	27	34.9	3.6	55.1	54	01 32	02 46	03 35	21 30	22 34	23 22	23 54
	03	228	16.3		42.0	35 06.2	8.9	27	38.5	3.5	55.1	56	00 55	02 29	03 23	21 50	22 56	23 42	24 11
	04	243	16.1		42.5	49 34.1	8.9	27	42.0	3.3	55.0	58	///	02 08	03 10	22 14	23 24	24 08	00 08
	05	258	16.0		43.0	64 02.0	8.9	27	45.3	3.2	55.0	S 60	///	01 41	02 54	22 48	24 04	00 04	00 43
	06	273	15.8	S 20	43.5	78 29.9	8.9	N 27	48.5	3.1	55.0								
	07	288	15.6		44.0	92 57.8	8.9	27	51.6	2.8	55.0								
	08	303	15.4		44.4	107 25.7	8.9	27	54.4	2.8	55.0								
	09	318	15.2		44.9	121 53.6	8.9	27	57.2	2.6	54.9								
	10	333	15.0		45.4	136 21.5	8.8	27	59.8	2.4	54.9								
	11	348	14.8		45.9	150 49.3	8.9	28	02.2	2.3	54.9								
	12	3 14.6	S 20	46.4	165 17.2	8.8	N 28	04.5	2.2	54.9	N 70	12 07	14 44	16 15					
	13	18 14.5		46.9	179 45.0	8.9	28	06.7	2.0	54.9	68	13 32	15 08	16 26					
	14	33 14.3		47.4	194 12.9	8.9	28	08.7	1.9	54.9	66	14 09	15 26	16 36					
	15	48 14.1		47.9	208 40.8	8.8	28	10.6	1.7	54.9	64	14 35	15 41	16 44					
	16	63 13.9		48.3	223 08.6	8.9	28	12.3	1.5	54.8	62	14 56	15 53	16 51	10 37			13 33	
	17	78 13.7		48.8	237 36.5	8.9	28	13.8	1.5	54.8	60	15 12	16 04	16 58	09 57	11 25	12 23	12 49	
	18	93 13.5	S 20	49.3	252 04.4	8.9	N 28	15.3	1.2	54.8	N 58	15 26	16 14	17 04	09 29	10 48	11 46	12 19	
	19	108 13.3		49.8	266 32.3	8.9	28	16.5	1.2	54.8	56	15 38	16 22	17 09	09 08	10 22	11 19	11 56	
	20	123 13.1		50.3	281 00.2	8.9	28	17.7	1.0	54.8	54	15 48	16 29	17 14	08 50	10 02	10 58	11 38	
	21	138 12.9		50.8	295 28.1	8.9	28	18.7	0.8	54.8	52	15 57	16 36	17 18	08 35	09 44	10 41	11 22	
	22	153 12.7		51.2	309 56.0	8.9	28	19.5	0.7	54.7	50	16 06	16 42	17 23	08 22	09 30	10 26	11 08	
	23	168 12.5		51.7	324 23.9	8.9	28	20.2	0.5	54.7	45	16 23	16 56	17 32	07 56	09 00	09 55	10 40	
26 WED NESDAY	00	183	12.3	S 20	52.2	338 51.8	9.0	N 28	20.7	0.4	54.7	N 40	16 38	17 07	17 41	07 35	08 37	09 32	10 14
	01	198	12.2		52.7	353 19.8	9.0	28	21.1	0.3	54.7	35	16 50	17 17	17 48	07 17	08 17	09 12	10 00
	02	213	12.0		53.2	7 47.8	8.9	28	21.4	0.1	54.7	30	17 01	17 27	17 56	07 02	08 01	08 56	09 44
	03	228	11.8		53.6	22 15.7	9.1	28	21.5	0.0	54.7	20	17 19	17 43	18 10	06 37	07 33	08 27	09 17
	04	243	11.6		54.1	36 43.8	9.0	28	21.5	0.2	54.7	N 10	17 35	17 58	18 24	06 15	07 09	08 03	08 54
	05	258	11.4		54.6	51 11.8	9.0	28	21.3	0.3	54.6	0	17 51	18 13	18 39	05 54	06 47	07 40	08 33
	06	273	11.2	S 20	55.1	65 39.8	9.1	N 28	21.0	0.5	54.6	S 10	18 06	18 29	18 55	05 34	06 25	07 18	08 11
	07	288	11.0		55.5	80 07.9	9.1	28	20.5	0.6	54.6	20	18 23	18 47	19 15	05 12	06 01	06 53	07 48
	08	303	10.8		56.0	94 36.0	9.2	28	19.9	0.8	54.6	30	18 42	19 09	19 41	04 47	05 34	06 25	07 20
	09	318	10.6		56.5	109 04.2	9.1	28	19.1	0.8	54.6	35	18 53	19 22	19 57	04 33	05 17	06 08	07 04
	10	333	10.4		57.0	123 32.3	9.2	28	18.3	1.1	54.6	40	19 06	19 38	20 17	04 16	04 58	05 49	06 45
	11	348	10.2		57.4	138 00.5	9.2	28	17.2	1.2	54.6	45	19 22	19 57	20 43	03 55	04 35	05 25	06 22
	12	3 10.0	S 20	57.9	152 28.7	9.3	N 28	16.0	1.3	54.5	S 50	19 41	20 23	21 20	03 30	04 06	04 54	05 53	
	13	18 09.8		58.4	166 57.0	9.3	28	14.7	1.5	54.5	52	19 50	20 35	21 40	03 17	03 52	04 39	05 39	
	14	33 09.6		58.9	181 25.3	9.3	28	13.2	1.6	54.5	54	20 01	20 49	22 05	03 03	03 35	04 21	05 22	
	15	48 09.4		59.3	195 53.6	9.3	28	11.6	1.7	54.5	56	20 12	21 07	22 44	02 47	03 15	03 59	05 02	
	16	63 09.2	20	59.8	210 21.9	9.4	28	09.9	1.9	54.5	58	20 26	21 28	///	02 28	02 50	03 31	04 36	
	17	78 09.0	21	00.3	224 50.3	9.5	28	08.0	2.0	54.5	S 60	20 42	21 56	///	02 03	02 16	02 51	04 01	
	18	93 08.8	S 21	00.7	239 18.8	9.4	N 28	06.0	2.2	54.5									
	19	108 08.6		01.2	253 47.2	9.6	28	03.8	2.3	54.5									
	20	123 08.4		01.7	268 15.8	9.5	28	01.5	2.4	54.4									
	21	138 08.2		02.1	282 44.3	9.6	27	59.1	2.6	54.4									
	22	153 08.0		02.6	297 12.9	9.7	27	56.5	2.7	54.4									
	23	168 07.8		03.1	311 41.6	9.6	27	53.8	2.9	54.4									
		S.D. 16.2	<i>d</i> 0.5	S.D. 15.1		15.0		14.9											
										Day	SUN Eqn. of Time 00 ^h 12 ^h		Mer. Pass.	MOON Mer. Pass. Upper Lower Age Phase					
										24	m s	m s	h m	h m	h m	d			
										25	13 2								

G.M.T.		ARIES		VENUS -3.4		MARS +0.7		JUPITER -1.3		SATURN +0.2		STARS												
		G.H.A.		Dec.		G.H.A.		Dec.		G.H.A.		Dec.		Name	S.H.A.	Dec.								
d	h	°	'	°	'	°	'	°	'	°	'	°	'		°	'								
27	00	65	43.9	197	26.4	S 16	50.0	106	36.9	S 17	24.5	220	46.1	S 9	09.5	33	43.2	N 10	06.5	Acamar	315	42.7	S 40	25.4
	01	80	46.4	212	25.7		50.9	121	37.6		23.9	235	48.1		09.7	48	45.8		06.4	Achernar	335	50.4	S 57	23.4
	02	95	48.9	227	25.0		51.8	136	38.2		23.3	250	50.1		09.8	63	48.4		06.4	Acrux	173	46.9	S 62	55.7
	03	110	51.3	242	24.3	..	52.7	151	38.9	..	22.7	265	52.1	..	10.0	78	51.0	..	06.3	Adhara	255	38.0	S 28	55.5
	04	125	53.8	257	23.7		53.6	166	39.5		22.1	280	54.2		10.2	93	53.7		06.3	Aldebaran	291	26.8	N 16	27.2
	05	140	56.3	272	23.0		54.5	181	40.1		21.5	295	56.2		10.3	108	56.3		06.2					
	06	155	58.7	287	22.3	S 16	55.4	196	40.8	S 17	20.9	310	58.2	S 9	10.5	123	58.9	N 10	06.2	Alioth	166	49.5	N 56	07.1
	07	171	01.2	302	21.6		56.3	211	41.4		20.2	326	00.2		10.7	139	01.5		06.1	Alkaid	153	24.9	N 49	27.6
	08	186	03.7	317	20.9		57.2	226	42.0		19.6	341	02.2		10.8	154	04.1		06.1	Al Na'ir	28	24.7	S 47	06.7
	09	201	06.1	332	20.3	..	58.1	241	42.7	..	19.0	356	04.2	..	11.0	169	06.7	..	06.1	Alnilam	276	19.4	S 1	13.0
	10	216	08.6	347	19.6		59.0	256	43.3		18.4	11	06.2		11.2	184	09.4		06.0	Alphard	218	28.3	S 8	31.5
	11	231	11.1	2	18.9	16	59.9	271	44.0		17.8	26	08.2		11.4	199	12.0		06.0					
	12	246	13.5	17	18.2	S 17	00.8	286	44.6	S 17	17.2	41	10.2	S 9	11.5	214	14.6	N 10	05.9	Alphecca	126	39.1	N 26	48.8
	13	261	16.0	32	17.5		01.7	301	45.2		16.6	56	12.2		11.7	229	17.2		05.9	Alpheratz	358	17.5	N 28	55.7
	14	276	18.4	47	16.9		02.6	316	45.9		16.0	71	14.3		11.9	244	19.8		05.8	Altair	62	40.5	N 8	47.2
	15	291	20.9	62	16.2	..	03.5	331	46.5	..	15.4	86	16.3	..	12.0	259	22.4	..	05.8	Ankaa	353	47.6	S 42	28.3
	16	306	23.4	77	15.5		04.4	346	47.1		14.8	101	18.3		12.2	274	25.0		05.7	Antares	113	07.0	S 26	22.1
	17	321	25.8	92	14.8		05.2	1	47.8		14.2	116	20.3		12.4	289	27.6		05.7					
	18	336	28.3	107	14.1	S 17	06.1	16	48.4	S 17	13.6	131	22.3	S 9	12.5	304	30.3	N 10	05.7	Arcturus	146	25.9	N 19	20.2
	19	351	30.8	122	13.4		07.0	31	49.1		13.0	146	24.3		12.7	319	32.9		05.6	Atria	108	39.0	S 68	58.6
	20	6	33.2	137	12.7		07.9	46	49.7		12.4	161	26.3		12.9	334	35.5		05.6	Avior	234	31.3	S 59	24.3
	21	21	35.7	152	12.1	..	08.8	61	50.3	..	11.8	176	28.3	..	13.0	349	38.1	..	05.5	Bellatrix	279	06.9	N 6	19.6
	22	36	38.2	167	11.4		09.7	76	51.0		11.1	191	30.3		13.2	4	40.7		05.5	Betelgeuse	271	36.5	N 7	24.3
	23	51	40.6	182	10.7		10.6	91	51.6		10.5	206	32.4		13.4	19	43.3		05.4					
28	00	66	43.1	197	10.0	S 17	11.5	106	52.3	S 17	09.9	221	34.4	S 9	13.5	34	45.9	N 10	05.4	Canopus	264	10.3	S 52	40.4
	01	81	45.6	212	09.3		12.4	121	52.9		09.3	236	36.4		13.7	49	48.6		05.4	Capella	281	22.5	N 45	58.3
	02	96	48.0	227	08.6		13.2	136	53.5		08.7	251	38.4		13.9	64	51.2		05.3	Deneb	49	54.2	N 45	10.5
	03	111	50.5	242	07.9	..	14.1	151	54.2	..	08.1	266	40.4	..	14.0	79	53.8	..	05.3	Denebola	183	07.2	N 14	44.4
	04	126	52.9	257	07.2		15.0	166	54.8		07.5	281	42.4		14.2	94	56.4		05.2	Diphda	349	28.5	S 18	09.1
	05	141	55.4	272	06.5		15.9	181	55.5		06.9	296	44.4		14.4	109	59.0		05.2					
	06	156	57.9	287	05.9	S 17	16.8	196	56.1	S 17	06.3	311	46.4	S 9	14.6	125	01.6	N 10	05.1	Dubhe	194	31.5	N 61	54.6
	07	172	00.3	302	05.2		17.7	211	56.7		05.7	326	48.4		14.7	140	04.2		05.1	Elath	278	53.8	N 28	35.2
	08	187	02.8	317	04.5		18.5	226	57.4		05.0	341	50.5		14.9	155	06.8		05.0	Eltanin	91	01.9	N 51	29.5
	09	202	05.3	332	03.8	..	19.4	241	58.0	..	04.4	356	52.5	..	15.1	170	09.5	..	05.0	Enif	34	19.4	N 9	44.2
	10	217	07.7	347	03.1		20.3	256	58.7		03.8	11	54.5		15.2	185	12.1		05.0	Fomalhaut	16	00.0	S 29	47.1
	11	232	10.2	2	02.4		21.2	271	59.3		03.2	26	56.5		15.4	200	14.7		04.9					
	12	247	12.7	17	01.7	S 17	22.1	287	00.0	S 17	02.6	41	58.5	S 9	15.6	215	17.3	N 10	04.9	Gacrux	172	38.2	S 56	56.4
	13	262	15.1	32	01.0		22.9	302	00.6		02.0	57	00.5		15.7	230	19.9		04.8	Gienah	176	26.3	S 17	22.4
	14	277	17.6	47	00.3		23.8	317	01.2		01.4	72	02.5		15.9	245	22.5		04.8	Hadar	149	35.5	S 60	13.6
	15	292	20.1	61	59.6	..	24.7	332	01.9	..	00.8	87	04.5	..	16.1	260	25.1	..	04.7	Hamal	328	37.6	N 23	19.5
	16	307	22.5	76	58.9		25.6	347	02.5		17 00.1	102	06.6		16.2	275	27.7		04.7	Kaus Aust.	84	27.7	S 34	24.2
	17	322	25.0	91	58.2		26.4	2	03.2	16	59.5	117	08.6		16.4	290	30.3		04.7					
	18	337	27.4	106	57.5	S 17	27.3	17	03.8	S 16	58.9	132	10.6	S 9	16.6	305	33.0	N 10	04.6	Kochab	137	19.1	N 74	16.5
	19	352	29.9	121	56.8		28.2	32	04.4		58.3	147	12.6		16.7	320	35.6		04.6	Markab	14	11.1	N 15	02.7
	20	7	32.4	136	56.1		29.0	47	05.1		57.7	162	14.6		16.9	335	38.2		04.5	Menkar	314	49.1	S 3	58.6
	21	22	34.8	151	55.4	..	29.9	62	05.7	..	57.1	177	16.6	..	17.1	350	40.8	..	04.5	Menkent	148	46.8	S 36	13.3
	22	37	37.3	166	54.7		30.8	77	06.4		56.5	192	18.6		17.2	5	43.4		04.4	Miaplacidus	221	46.8	S 69	35.2
	23	52	39.8	181	54.0		31.6	92	07.0		55.8	207	20.7		17.4	20	46.0		04.4					
29	00	67	42.2	196	53.3	S 17	32.5	107	07.7	S 16	55.2	222	22.7	S 9	17.6	35	48.6	N 10	04.4	Mirfak	309	27.1	N 49	45.6
	01	82	44.7	211	52.6		33.4	122	08.3		54.6	237	24.7		17.7	50	51.2		04.3	Nunki	76	39.3	S 26	20.3
	02	97	47.2	226	51.9		34.2	137	09.0		54.0	252	26.7		17.9	65	53.8		04.3	Peacock	54	11.0	S 56	50.3
	03	112	49.6	241	51.2	..	35.1	152	09.6	..	53.4	267	28.7	..	18.1	80	56.4	..	04.2	Pollux	244	07.5	N 28	06.1
	04	127	52.1	256	50.5		36.0	167	10.2		52.8	282	30.7		18.2	95	59.1		04.2	Procyon	245	33.8	N 5	18.4
	05	142	54.5	271	49.8		36.8	182	10.9		52.2	297	32.7		18.4	111	01.7		04.1					
	06	157	57.0	286	49.1	S 17	37.7	197	11.5	S 16	51.5	312	34.8	S 9	18.6	126	04.3	N 10	04.1	Rasalhague	96	37.3	N 12	34.8
	07	172	59.5	301	48.4		38.6	212	12.2		50.9	327	36.8		18.7	141	06.9		04.1	Regulus	208	18.3	N 12	06.9
	08	188	01.9	316	47.7		39.4	227	12.8		50.3	342	38.8		18.9	156	09.5		04.0	Rigel	281	43.3	S 8	13.9
	09	203	04.4	331	47.0	..	40.3	242	13.5	..	49.7	357	40.8	..	19.1	171	12.1	..	04.0	Rigel Kent.	140	37.4	S 60	42.5
	10	218	06.9	346	46.3		41.1	257	14.1		49.1	12	42.8		19.2	186	14.7		03.9	Sabik	102	50.6	S 15	41.4
	11	233	09.3	1	45.6		42.0	272	14.8		48.4	27	44.8		19.4	201	17.3		03.9					
	12	248	11.8	16	44.9	S 17	42.9	287	15.4	S 16	47.8	42	46.8	S 9	19.6	216	19.9	N 10	03.9	Schedar	350	18.0	N 56	22.7
	13	263	14.3	31	44.2		43.7	302	16.0		47.2	57	48.9		19.7	231	22.5		03.8	Shaula	97	07.0	S 37	05.1
	14	278	16.7	46	43.5		44.6	317	16.7		46.6	72	50.9		19.9	246	25.1		03.8	Sirius	259	02.4	S 16	40.2
	15	293	19.2	61	42.7	..	45.4	332	17.3	..	46.0	87	52.9	..	20.1	261	27.7	..	03.7	Spica	159	06.2	S 11	00.2
	16	308	21.7																					

G.M.T.	SUN				MOON				Lat.	Twilight		Sun-rise	Moonrise							
	G.H.A.		Dec.	d	H.P.	Naut.	Civil	27		28	29		30							
	d	h																		
27 00	183	07.6	S 21	03.5	326	10.2	9.8	N 27	50.9	3.0	54.4	N 72	07 42	09 35				19 15		
01	198	07.4		04.0	340	39.0	9.8	N 27	47.9	3.1	54.4	N 70	07 27	09 00				19 54		
02	213	07.2		04.4	355	07.8	9.8	N 27	44.8	3.2	54.4	68	07 14	08 35	10 18			18 02	20 20	
03	228	07.0		04.9	370	06.6	9.9	N 27	41.6	3.4	54.4	66	07 04	08 15	09 35			18 45	20 41	
04	243	06.8		05.4	24	05.5	9.9	N 27	38.2	3.6	54.4	64	06 55	07 59	09 07			17 15	19 13	
05	258	06.6		05.8	38	34.4	10.0	N 27	34.6	3.6	54.4	62	06 46	07 46	08 46	16 04	17 54	19 35	21 10	
06	273	06.4	S 21	06.3	53	03.4	10.1	N 27	31.0	3.8	54.3	60	06 41	07 35	08 28	16 49	18 21	19 52	21 21	
07	288	06.2		06.7	67	32.5	10.0	N 27	27.2	3.9	54.3	N 58	06 35	07 25	08 14	17 18	18 42	20 07	21 31	
08	303	06.0		07.2	82	01.5	10.2	N 27	23.3	4.1	54.3	56	06 29	07 16	08 01	17 40	18 59	20 19	21 39	
09	318	05.8		07.7	96	30.7	10.2	N 27	19.2	4.2	54.3	54	06 24	07 09	07 50	17 59	19 13	20 30	21 47	
10	333	05.6		08.1	110	59.9	10.3	N 27	15.0	4.3	54.3	52	06 19	07 02	07 41	18 14	19 26	20 40	21 53	
11	348	05.4		08.6	125	29.2	10.3	N 27	10.7	4.4	54.3	50	06 15	06 55	07 32	18 28	19 37	20 48	21 59	
12	3 05.2	S 21	09.0		139	58.5	10.3	N 27	06.3	4.6	54.3	45	06 05	06 41	07 14	18 55	20 00	21 06	22 12	
13	18	05.0		09.5	154	27.8	10.5	N 27	01.7	4.7	54.3	N 40	05 06	06 29	06 59	19 17	20 18	21 21	22 23	
14	33	04.8		09.9	168	57.3	10.5	N 27	00.0	4.8	54.3	35	05 46	06 19	06 47	19 34	20 34	21 33	22 32	
15	48	04.6		10.4	183	26.8	10.5	N 27	00.0	5.0	54.3	30	05 40	06 10	06 36	19 50	20 47	21 44	22 39	
16	63	04.4		10.8	197	56.3	10.6	N 27	00.0	5.2	54.3	20	05 26	05 53	06 17	20 16	21 09	22 02	22 53	
17	78	04.1		11.3	212	25.9	10.7	N 27	00.0	5.2	54.2	N 10	05 11	05 37	06 00	20 38	21 29	22 18	23 05	
18	93	03.9	S 21	11.8	226	55.6	10.8	N 26	37.0	5.3	54.2	0	04 56	05 22	05 44	20 59	21 47	22 33	23 16	
19	108	03.7		12.2	241	25.4	10.8	N 26	31.7	5.5	54.2	S 10	04 39	05 06	05 28	21 19	22 05	22 47	23 27	
20	123	03.5		12.7	255	55.2	10.8	N 26	26.2	5.6	54.2	20	04 19	04 47	05 11	21 42	22 24	23 03	23 38	
21	138	03.3		13.1	270	25.0	11.0	N 26	20.6	5.6	54.2	30	03 53	04 25	04 52	22 07	22 47	23 21	23 51	
22	153	03.1		13.5	284	55.0	11.0	N 26	15.0	5.8	54.2	35	03 36	04 11	04 40	22 22	23 00	23 31	23 59	
23	168	02.9		14.0	299	25.0	11.0	N 26	09.2	6.0	54.2	40	03 15	03 55	04 27	22 40	23 14	23 43	24 08	
												45	02 49	03 35	04 11	23 01	23 32	23 57	24 18	
28 00	183	02.7	S 21	14.4	313	55.0	11.1	N 26	03.2	6.0	54.2	S 50	02 11	03 09	03 51	23 27	23 54	24 14	00 14	
01	198	02.5		14.9	328	25.1	11.2	N 26	00.0	6.2	54.2	52	01 51	02 56	03 42	23 40	24 04	00 04	00 22	
02	213	02.3		15.3	342	55.3	11.3	N 26	00.0	6.3	54.2	54	01 23	02 42	03 31	23 54	24 16	00 16	00 31	
03	228	02.1		15.6	357	25.6	11.3	N 26	00.0	6.4	54.2	56	00 39	02 24	03 19	24 11	00 11	00 29	00 41	
04	243	01.9		16.2	11	55.9	11.4	N 25	38.3	6.5	54.2	58	00 00	02 02	03 05	00 08	00 32	00 45	00 52	
05	258	01.6		16.7	26	26.3	11.5	N 25	31.8	6.6	54.2	S 60	00 00	01 32	02 49	00 43	00 58	01 03	01 05	
06	273	01.4	S 21	17.1	40	56.8	11.5	N 25	25.2	6.7	54.2									
07	288	01.2		17.6	55	27.3	11.6	N 25	18.5	6.9	54.2									
08	303	01.0		18.0	69	57.9	11.6	N 25	11.6	6.9	54.2									
09	318	00.8		18.4	84	28.5	11.8	N 25	04.7	7.1	54.1									
10	333	00.6		18.9	98	59.3	11.8	N 24	57.6	7.2	54.1									
11	348	00.4		19.3	113	30.1	11.8	N 24	50.4	7.3	54.1									
12	3 00.2	S 21	19.8		128	00.9	12.0	N 24	43.1	7.4	54.1									
13	17	00.0		20.2	142	31.9	12.0	N 24	35.7	7.5	54.1									
14	32	00.0		20.6	157	02.9	12.1	N 24	28.2	7.6	54.1									
15	47	00.0		21.1	171	34.0	12.1	N 24	20.6	7.8	54.1									
16	62	00.0		21.5	186	05.1	12.2	N 24	12.8	7.8	54.1									
17	77	00.0		21.9	200	36.3	12.3	N 24	05.0	7.9	54.1									
18	92	00.0	S 21	22.4	215	07.6	12.4	N 23	57.1	8.1	54.1									
19	107	00.0		22.8	229	39.0	12.4	N 23	49.0	8.1	54.1									
20	122	00.0		23.2	244	10.4	12.5	N 23	40.9	8.3	54.1									
21	137	00.0		23.7	258	41.9	12.5	N 23	32.6	8.3	54.1									
22	152	00.0		24.1	273	13.4	12.7	N 23	24.3	8.5	54.1									
23	167	00.0		24.5	287	45.1	12.7	N 23	15.8	8.5	54.1									
29 00	182	57.6	S 21	25.0	302	16.8	12.7	N 23	07.3	8.6	54.1	N 40	16 36	17 06	17 40	10 18	10 57	11 28	11 55	
01	197	57.4		25.4	316	48.5	12.9	N 22	58.7	8.8	54.1	35	16 49	17 17	17 48	10 00	10 41	11 15	11 45	
02	212	57.2		25.8	331	20.4	12.9	N 22	49.9	8.8	54.1	30	17 00	17 26	17 55	09 44	10 27	11 03	11 36	
03	227	56.9		26.3	345	52.3	12.9	N 22	41.1	9.0	54.1	20	17 19	17 43	18 10	09 17	10 03	10 43	11 20	
04	242	56.7		26.7	0	24.2	13.1	N 22	32.1	9.0	54.1	N 10	17 36	17 58	18 24	08 54	09 42	10 26	11 06	
05	257	56.5		27.1	14	56.3	13.1	N 22	23.1	9.1	54.1	0	17 52	18 14	18 40	08 33	09 22	10 09	10 54	
06	272	56.3	S 21	27.5	29	28.4	13.2	N 22	14.0	9.2	54.1	S 10	18 08	18 30	18 57	08 11	09 03	09 53	10 41	
07	287	56.1		28.0	44	00.6	13.2	N 22	04.8	9.3	54.1	20	18 25	18 49	19 17	07 48	08 42	09 35	10 27	
08	302	55.8		28.4	58	32.8	13.3	N 21	55.5	9.4	54.1	30	18 45	19 11	19 44	07 20	08 17	09 14	10 11	
09	317	55.6		28.8	73	05.1	13.4	N 21	46.1	9.5	54.1	35	18 56	19 25	20 01	07 04	08 03	09 02	10 01	
10	332	55.4		29.2	87	37.5	13.4	N 21	36.6	9.6	54.1	40	19 10	19 42	20 21	06 45	07 46	08 48	09 51	
11	347	55.2		29.6	102	09.9	13.5	N 21	27.0	9.7	54.1	45	19 26	20 02	20 48	06 22	07 26	08 32	09 38	
12	2 55.0	S 21	30.1		116	42.4	13.6	N 21	17.3	9.8	54.1	S 50	19 46	20 28	21 26	05 53	07 00	08 11	09 22	
13	17	54.7		30.5	131	15.0	13.6	N 21	07.5	9.8	54.1	52	19 55	20 41	21 47	05 39	06 48	08 01	09 15	
14	32	54.5		30.9	145	47.6	13.7	N 20	57.7	9.9	54.1	54	20 06	20 56	22 15	05 22	06 34	07 50	09 07	
15	47	54.3		31.3	160	20.3	13.8	N 20	47.8	10.1	54.1	56	20 18	21 14	23 03	05 02	06 17	07 37	08 58	
16	62	54.1		31.8	174	53.1	13.8	N 20	37.7	10.1	54.1	58	20 32	21 36	23 33	04 36	05 57	07 22	08 47	
17	77	53.9		32.2	189	25.9	13.9	N 20	27.6	10.2	54.1	S 60	20 49	22 07	23 33	04 01	05 31	07 05	08 35	
18	92	53.6	S 21	32.6	203	58.8	14.0	N 20	17.4	10.2	54.1									
19	107	53.4		33.0	218	31.8	14.0	N 20	07.2	10.4	54.2									
20	122	53.2		33.4	233	04.8	14.1	N 19	56.8	10.4	54.2									
21	137	53.0		33.8	247	37.9	14.1	N 19	46.4	10.6	54.2									
22	152	52.8		34.3	262	11.0	14.2	N 19	35.8	10.6	54.2									
23	167	52.5		34.7	276	44.2	14.3	N 19	25.2	10.7	54.2									
	S.D. 16.2	d	0.4		S.D. 14.8	14.8	14.7					Day	SUN Eqn. of Time 00h 12h		Mer. Pass.	MOON Mer. Upper Pass. Lower Age				Phase
													m s	m s	h m	h m	h m	d		
												27	12 31							

G.M.T.		ARIES			VENUS -3-4			MARS -0-7			JUPITER -1-3			SATURN +0-3			STARS							
		G.H.A.			Dec.			G.H.A.			Dec.			G.H.A.			Dec.			Name	S.H.A.	Dec.		
d	h	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"		
SUNDAY	00	68	41.4	196	36.3	S 17	53.1	107	23.1	S 16	40.4	223	11.0	S 9	21.6	36	51.2	N 10	03.3	Acamar	315	42.7	S 40	25.4
	01	83	43.8	211	35.6	54.0	122	23.8	39.8	238	13.0	21.7	51	53.8	03.3	Acernar	335	50.4	S 57	23.4				
	02	98	46.3	226	34.9	54.8	137	24.4	39.1	253	15.1	21.9	66	56.4	03.3	Acruz	173	46.8	S 62	55.7				
	03	113	48.8	241	34.2	55.6	152	25.1	38.5	268	17.1	22.1	81	59.0	03.2	Adhara	255	38.0	S 28	55.5				
	04	128	51.2	256	33.5	56.5	167	25.7	37.9	283	19.1	22.2	97	01.6	03.2	Aldebaran	291	26.8	N 16	27.2				
	05	143	53.7	271	32.8	57.3	182	26.4	37.3	298	21.1	22.4	112	04.2	03.1									
	06	158	56.2	286	32.0	S 17	58.2	197	27.0	S 16	36.7	313	23.1	S 9	22.6	127	06.8	N 10	03.1	Alioth	166	49.4	N 56	07.1
	07	173	58.6	301	31.3	59.0	212	27.7	36.0	328	25.1	22.7	142	09.5	03.1	Alkaid	153	24.9	N 49	27.4				
	08	189	01.1	316	30.6	17	59.9	227	28.3	35.4	343	27.2	22.9	157	12.1	03.0	Al Na'ir	28	24.7	S 47	06.1			
	09	204	03.5	331	29.9	18	00.7	242	29.0	34.8	358	29.2	23.1	172	14.7	03.0	Alnilam	276	19.4	S 1	13.3			
	10	219	06.0	346	29.2	01	5	257	29.6	34.2	13	31.2	23.2	187	17.3	02.9	Alphard	218	28.2	S 8	31.5			
	11	234	08.5	1	28.5	02	4	272	30.3	33.5	28	33.2	23.4	202	19.9	02.9								
	12	249	10.9	16	27.7	S 18	03.2	287	30.9	S 16	32.9	43	35.2	S 9	23.5	217	22.5	N 10	02.9	Alphecca	126	39.1	N 26	48.8
	13	264	13.4	31	27.0	04	0	302	31.6	32.3	58	37.3	23.7	232	25.1	02.8	Alpheratz	358	17.5	N 28	55.7			
	14	279	15.9	46	26.3	04	9	317	32.2	31.7	73	39.3	23.9	247	27.7	02.8	Altair	62	40.5	N 8	47.2			
	15	294	18.3	61	25.6	05	7	332	32.9	31.0	88	41.3	24.0	262	30.3	02.7	Ankaa	353	47.6	S 42	28.3			
	16	309	20.8	76	24.8	06	6	347	33.5	30.4	103	43.3	24.2	277	32.9	02.7	Antares	113	07.0	S 26	22.1			
17	324	23.3	91	24.1	07	4	2	34.2	29.8	118	45.3	24.4	292	35.5	02.7									
18	339	25.7	106	23.4	S 18	08.2	17	34.8	S 16	29.2	133	47.3	S 9	24.5	307	38.1	N 10	02.6	Arcturus	146	25.9	N 19	20.2	
19	354	28.2	121	22.7	09	1	32	35.4	28.5	148	49.4	24.7	322	40.7	02.6	Atria	108	39.0	S 68	58.6				
20	9	30.7	136	22.0	09	9	47	36.1	27.9	163	51.4	24.9	337	43.3	02.5	Avior	234	31.3	S 59	24.4				
21	24	33.1	151	21.2	10	7	62	36.7	27.3	178	53.4	25.0	352	45.9	02.5	Bellatrix	279	06.9	N 6	19.6				
22	39	35.6	166	20.5	11	5	77	37.4	26.7	193	55.4	25.2	7	48.5	02.5	Betelgeuse	271	36.5	N 7	24.3				
23	54	38.0	181	19.8	12	4	92	38.0	26.0	208	57.4	25.4	22	51.1	02.4									
MONDAY	00	69	40.5	196	19.1	S 18	13.2	107	38.7	S 16	25.4	223	59.5	S 9	25.5	37	53.7	N 10	02.4	Canopus	264	10.2	S 52	40.4
	01	84	43.0	211	18.3	14	0	122	39.3	24.8	239	01.5	25.7	52	56.3	02.3	Capella	281	22.5	N 45	58.3			
	02	99	45.4	226	17.6	14	8	137	40.0	24.1	254	03.5	25.8	67	58.9	02.3	Deneb	49	54.2	N 45	10.5			
	03	114	47.9	241	16.9	15	7	152	40.6	23.5	269	05.5	26.0	83	01.5	02.3	Denebola	183	07.1	N 14	44.4			
	04	129	50.4	256	16.1	16	5	167	41.3	22.9	284	07.5	26.2	98	04.2	02.2	Diphda	349	28.5	S 18	09.1			
	05	144	52.8	271	15.4	17	3	182	41.9	22.3	299	09.5	26.3	113	06.8	02.2								
	06	159	55.3	286	14.7	S 18	18.1	197	42.6	S 16	21.6	314	11.6	S 9	26.5	128	09.4	N 10	02.1	Dubhe	194	31.5	N 61	54.6
	07	174	57.8	301	14.0	19	0	212	43.2	21.0	329	13.6	26.7	143	12.0	02.1	Elnath	278	53.8	N 28	35.2			
	08	190	00.2	316	13.2	19	8	227	43.9	20.4	344	15.6	26.8	158	14.6	02.1	Eltanin	91	01.9	N 51	29.5			
	09	205	02.7	331	12.5	20	6	242	44.5	19.7	359	17.6	27.0	173	17.2	02.0	Enif	34	19.4	N 9	44.2			
	10	220	05.2	346	11.8	21	4	257	45.2	19.1	14	19.6	27.2	188	19.8	02.0	Fomalhaut	16	00.0	S 29	47.1			
	11	235	07.6	1	11.0	22	2	272	45.8	18.5	29	21.7	27.3	203	22.4	01.9								
	12	250	10.1	16	10.3	S 18	23.1	287	46.5	S 16	17.8	44	23.7	S 9	27.5	218	25.0	N 10	01.9	Gacrux	172	38.2	S 56	56.4
	13	265	12.5	31	09.6	23	9	302	47.1	17.2	59	25.7	27.6	233	27.6	01.9	Gienah	176	26.3	S 17	22.4			
	14	280	15.0	46	08.8	24	7	317	47.8	16.6	74	27.7	27.8	248	30.2	01.8	Hadar	149	35.4	S 60	13.6			
	15	295	17.5	61	08.1	25	5	332	48.4	16.0	89	29.7	28.0	262	32.8	01.8	Hamal	328	37.6	N 23	19.5			
	16	310	19.9	76	07.4	26	3	347	49.1	15.3	104	31.8	28.1	278	35.4	01.7	Kaus Aust.	84	27.7	S 34	24.2			
17	325	22.4	91	06.6	27	1	2	49.8	14.7	119	33.8	28.3	293	38.0	01.7									
18	340	24.9	106	05.9	S 18	27.9	17	50.4	S 16	14.1	134	35.8	S 9	28.5	308	40.6	N 10	01.7	Kochab	137	19.1	N 74	16.5	
19	355	27.3	121	05.2	28	8	32	51.1	13.4	149	37.8	28.6	323	43.2	01.6	Markab	14	11.1	N 15	02.7				
20	10	29.8	136	04.4	29	6	47	51.7	12.8	164	39.9	28.8	338	45.8	01.6	Menkar	314	49.1	N 3	58.5				
21	25	32.3	151	03.7	30	4	62	52.4	12.2	179	41.9	29.0	353	48.4	01.5	Menkent	148	46.8	S 36	13.3				
22	40	34.7	166	02.9	31	2	77	53.0	11.5	194	43.9	29.1	8	51.0	01.5	Miaplacidus	221	46.7	S 69	35.2				
23	55	37.2	181	02.2	32	0	92	53.7	10.9	209	45.9	29.3	23	53.6	01.5									
TUESDAY	00	70	39.6	196	01.5	S 18	32.8	107	54.3	S 16	10.3	224	47.9	S 9	29.4	38	56.2	N 10	01.4	Mirfak	309	27.1	N 49	45.6
	01	85	42.1	211	00.7	33	6	122	55.0	09.6	239	50.0	29.6	53	58.8	01.4	Nunki	76	39.3	S 26	20.3			
	02	100	44.6	226	00.0	34	4	137	55.6	09.0	254	52.0	29.8	69	01.4	01.3	Peacock	54	11.0	S 56	50.3			
	03	115	47.0	240	59.2	35	2	152	56.3	08.4	269	54.0	29.9	84	04.0	01.3	Pollux	244	07.5	N 28	06.0			
	04	130	49.5	255	58.5	36	0	167	56.9	07.7	284	56.0	30.1	99	06.6	01.3	Procyon	245	33.8	N 5	18.3			
	05	145	52.0	270	57.8	36	8	182	57.6	07.1	299	58.0	30.3	114	09.2	01.2								
	06	160	54.4	285	57.0	S 18	37.6	197	58.2	S 16	06.4	315	00.1	S 9	30.4	129	11.8	N 10	01.2	Rasalhague	96	37.2	N 12	34.8
	07	175	56.9	300	56.3	38	4	212	58.9	05.8	330	02.1	30.6	144	14.4	01.2	Regulus	208	18.3	N 12	06.9			
	08	190	59.4	315	55.5	39	2	227	59.5	05.2	345	04.1	30.7	159	17.0	01.1	Rigel	281	43.3	S 8	13.9			
	09	206	01.8	330	54.8	40	0	243	00.2	04.5	0	06.1	30.9	174	19.6	01.1	Rigel Kent.	140	37.4	S 60	42.5			
	10	221	04.3	345	54.1	40	8	258	00.9	03.9	15	08.2	31.1	189	22.2	01.0	Sabik	102	50.6	S 15	41.4			
	11	236	06.7	0	53.3	41	6	273	01.5	03.3	30	10.2	31.2	204	24.8	01.0								
	12	251	09.2	15	52.6	S 18	42.4	288	02.2	S 16	02.6	45	12.2	S 9	31.4	219	27.4	N 10	01.0	Schedar	350	18.1	N 56	22.7
	13	266	11.7	30	51.8	43	2	303	02.8	02.0	60	14.2	31.6	234	30.0	00.9	Shaula	97	06.9	S 37	05.1			
	14	281	14.1	45	51.1	44	0	318	03.5	01.4	75	16.3	31.7	249	32.6	00.9	Sirius	259	02.4	S 16	40.2			
	15	296	16.6	60	50.3	44	8	333	04.1	00.7	90	18.3	31.9	264	35.2	00.8	Spica	159	06.1	S 11	00.2			
	16	311	19.1	75	49.6	45	6	348	04.8	16	00.1	105	20.3	32.0	279	37.8	00.8	Suhail	223	16.6	S 43	18.3		
17	326	21.5	90	48.8	46	4	3	05.4	15	59.4	120	22.3	32.2	294	40.4	00.8								
18	341	24.0	105	48.1	S 18	47.2	18	06.1	S 15	58.8	135	24.3	S 9	32.4	309	43.0	N 10	00.7	Vega	81	01.6	N 38	45.3	
19	356	26.5	120	47.3	48	0	33	06.7	58.2	150	26.4	32.5	324	45.6	00.7	Zuben'ubi								

G.M.T.	SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise				
	G.H.A.	Dec.	G.H.A.	D	Dec.	d		H.P.	Naut.		Civil	30	1	2	3
30 00	182 52.3	21 38.1	291 17.5	14.3	19 14.5	16.7	54.2	N 72	07 50	09 49	■	19 15	21 45	23 51	25 54
01	197 52.1	35.5	305 50.8	14.4	19 03.8	10.9	54.2	N 70	07 34	09 19	■	19 34	22 01	23 56	25 50
02	212 51.9	35.9	320 24.2	14.4	18 52.9	10.9	54.2	68	07 21	08 43	10 35	20 20	22 14	24 00	00 06
03	227 51.6	36.3	334 57.6	14.5	18 42.0	11.0	54.2	66	07 10	08 23	09 46	20 41	22 24	24 04	00 04
04	242 51.4	36.7	349 31.1	14.5	18 31.0	11.0	54.2	64	07 01	08 06	09 15	20 57	22 33	24 07	00 07
05	257 51.2	37.1	4 04.6	14.6	18 20.0	11.2	54.2	62	06 53	07 52	08 53	21 10	22 41	24 10	00 10
06	272 51.0	S 21 37.5	18 38.2	14.7	N 18 08.8	11.2	54.2	60	06 46	07 46	08 34	21 21	22 47	24 12	00 12
07	287 50.7	37.9	33 11.9	14.7	17 57.6	11.3	54.2	N 58	06 39	07 30	08 19	21 31	22 53	24 14	00 14
08	302 50.5	38.4	47 45.6	14.8	17 46.3	11.4	54.2	56	06 33	07 21	08 06	21 39	22 58	24 16	00 16
S 09	317 50.3	38.8	62 19.4	14.8	17 34.9	11.4	54.2	54	06 28	07 13	07 55	21 47	23 02	24 17	00 17
U 10	332 50.1	39.2	76 53.2	14.8	17 23.5	11.5	54.3	52	06 23	07 06	07 45	21 53	23 06	24 19	00 19
N 11	347 49.8	39.6	91 27.5	15.0	17 12.5	11.6	54.3	50	06 18	06 59	07 36	21 59	23 10	24 20	00 20
D 12	2 49.6	S 21 40.0	106 01.4	14.9	N 17 05.4	11.6	54.3	45	06 08	06 45	07 18	22 12	23 17	24 23	00 23
A 13	17 49.4	40.4	125 34.9	15.1	N 17 06.4	11.6	54.3	N 40	05 59	06 32	07 02	22 23	23 24	24 25	00 25
Y 14	32 49.1	40.8	135 09.0	15.1	N 17 06.4	11.6	54.3	35	05 50	06 22	06 49	22 32	23 29	24 27	00 27
15	47 48.9	41.2	145 43.5	15.1	N 17 06.4	11.6	54.3	30	05 43	06 12	06 38	22 39	23 34	24 29	00 29
16	62 48.7	41.6	164 17.1	15.2	N 16 25.3	11.9	54.3	20	05 28	05 55	06 19	22 53	23 43	24 32	00 32
17	77 48.5	42.0	178 51.3	15.2	N 16 13.4	11.9	54.3	N 10	05 13	05 39	06 01	23 05	23 50	24 35	00 35
18	92 48.2	S 21 42.4	193 25.5	15.3	N 16 01.5	12.0	54.3	0	04 57	05 23	05 45	23 16	23 57	24 38	00 38
19	107 48.0	42.8	207 59.8	15.3	N 15 49.5	12.1	54.4	S 10	04 40	05 06	05 29	23 27	24 04	00 04	00 40
20	122 47.8	43.2	222 34.1	15.3	N 15 37.4	12.1	54.4	20	04 19	04 47	05 12	23 38	24 11	00 11	00 43
21	137 47.5	43.6	237 08.4	15.4	N 15 25.3	12.2	54.4	30	03 52	04 24	04 51	23 51	24 19	00 19	00 46
22	152 47.3	44.0	251 42.6	15.4	N 15 13.1	12.2	54.4	35	03 35	04 10	04 39	23 59	24 24	00 24	00 48
23	167 47.1	44.4	266 17.2	15.5	N 15 00.9	12.3	54.4	40	03 14	03 54	04 26	24 08	00 08	00 30	00 50
I 00	182 46.9	S 21 44.8	280 51.7	15.5	N 14 48.6	12.4	54.4	45	02 46	03 33	04 09	24 18	00 18	00 36	00 52
01	197 46.6	45.2	295 26.2	15.6	N 14 36.2	12.4	54.4	S 50	02 07	03 07	03 49	00 14	00 30	00 43	00 55
02	212 46.4	45.6	310 00.8	15.6	N 14 23.5	12.5	54.4	52	01 45	02 53	03 39	00 22	00 35	00 47	00 56
03	227 46.2	46.0	324 35.4	15.6	N 14 11.3	12.5	54.4	54	01 15	02 38	03 28	00 31	00 42	00 50	00 58
04	242 45.9	46.4	339 10.0	15.6	N 13 58.8	12.7	54.5	56	00 19	02 19	03 16	00 41	00 48	00 54	00 59
05	257 45.7	46.7	353 44.6	15.7	N 13 46.1	12.6	54.5	58	00 00	01 56	03 01	00 52	00 56	00 59	01 01
06	272 45.5	S 21 47.1	8 19.3	15.8	N 13 33.5	12.7	54.5	S 60	00 00	01 23	02 44	01 05	01 05	01 04	01 03
07	287 45.2	47.5	22 54.1	15.7	N 13 20.8	12.8	54.5								
08	302 45.0	47.9	37 28.8	15.8	N 13 08.0	12.9	54.5	Lat.	Sun-set	Twilight		Moonset			
M 09	317 44.8	48.3	52 03.6	15.9	N 12 55.1	12.9	54.5			Civil	Naut.	30	1	2	3
O 10	332 44.5	48.7	66 38.5	15.8	N 12 42.2	12.9	54.6								
N 11	347 44.3	49.1	81 13.3	15.9	N 12 29.3	13.0	54.6								
D 12	2 44.1	S 21 49.5	95 48.2	15.9	N 12 16.3	13.1	54.6	N 72	■	13 48	15 47	15 17	14 15	13 36	13 03
A 13	17 43.8	49.9	110 23.1	16.0	N 12 03.2	13.1	54.6	N 70	■	14 27	16 03	14 36	13 56	13 28	13 02
Y 14	32 43.6	50.2	124 58.1	15.9	N 11 50.1	13.1	54.6	68	13 03	14 54	16 16	14 08	13 42	13 21	13 02
15	47 43.4	50.6	139 33.0	16.0	N 11 37.0	13.2	54.6	66	13 51	15 15	16 27	13 47	13 29	13 15	13 02
16	62 43.1	51.0	154 08.0	16.1	N 11 23.7	13.2	54.6	64	14 22	15 32	16 37	13 29	13 19	13 10	13 01
17	77 42.9	51.4	168 43.1	16.0	N 11 10.5	13.3	54.7	62	14 45	15 45	16 45	13 15	13 10	13 06	13 01
18	92 42.7	S 21 51.8	183 18.1	16.1	N 10 57.2	13.4	54.7	60	15 03	15 57	16 52	13 03	13 03	13 02	13 01
19	107 42.4	52.2	197 53.2	16.1	N 10 43.8	13.4	54.7	N 58	15 18	16 08	16 59	12 52	12 56	12 58	13 00
20	122 42.2	52.5	212 28.3	16.1	N 10 30.4	13.5	54.7	56	15 31	16 17	17 04	12 43	12 50	12 55	13 00
21	137 41.9	52.9	227 03.4	16.1	N 10 16.9	13.5	54.7	54	15 43	16 25	17 10	12 35	12 45	12 53	13 00
22	152 41.7	53.3	241 38.5	16.1	N 10 03.4	13.5	54.8	52	15 53	16 32	17 15	12 28	12 40	12 50	13 00
23	167 41.5	53.7	256 13.6	16.2	N 9 49.9	13.6	54.8	50	16 01	16 39	17 19	12 21	12 35	12 48	13 00
200	182 41.2	S 21 54.1	270 48.6	16.2	N 9 36.3	13.7	54.8	45	16 20	16 53	17 30	12 07	12 26	12 43	12 59
01	197 41.0	54.4	285 24.0	16.2	N 9 22.6	13.7	54.8	N 40	16 36	17 06	17 39	11 55	12 18	12 39	12 59
02	212 40.8	54.8	299 59.2	16.2	N 9 08.9	13.7	54.8	35	16 48	17 16	17 47	11 45	12 11	12 35	12 59
03	227 40.5	55.2	314 34.4	16.2	N 8 55.2	13.8	54.9	30	17 00	17 26	17 55	11 36	12 05	12 32	12 59
04	242 40.3	55.6	329 09.6	16.2	N 8 41.4	13.8	54.9	20	17 19	17 43	18 10	11 20	11 54	12 26	12 58
05	257 40.0	56.0	343 44.8	16.3	N 8 27.6	13.9	54.9	N 10	17 37	17 59	18 25	11 06	11 45	12 21	12 58
06	272 39.8	S 21 56.3	358 20.1	16.2	N 8 13.7	13.9	54.9	0	17 53	18 15	18 41	10 54	11 36	12 17	12 57
07	287 39.6	56.7	358 20.1	16.2	N 7 59.8	14.0	54.9	S 10	18 09	18 32	18 58	10 41	11 27	12 12	12 57
08	302 39.3	57.1	12 55.3	16.3	N 7 45.8	13.9	55.0	20	18 27	18 51	19 20	10 27	11 17	12 07	12 57
T 09	317 39.1	57.4	27 30.6	16.3	N 7 31.9	14.1	55.0	30	18 47	19 14	19 47	10 11	11 06	12 01	12 56
10	332 38.8	57.8	42 05.9	16.2	N 7 17.9	14.1	55.0	35	18 59	19 28	20 04	10 01	11 00	11 57	12 56
11	347 38.6	58.2	56 41.1	16.3	N 7 03.8	14.1	55.0	40	19 13	19 45	20 25	09 51	10 52	11 53	12 55
12	2 38.4	S 21 58.6	71 16.4	16.3	N 6 49.7	14.2	55.1	45	19 29	20 05	20 53	09 38	10 44	11 49	12 55
13	17 38.1	58.9	85 51.7	16.3	N 6 35.5	14.2	55.1	S 50	19 50	20 32	21 32	09 22	10 33	11 43	12 54
14	32 37.9	59.3	100 27.0	16.2	N 6 21.3	14.2	55.1	52	20 00	20 46	21 55	09 15	10 28	11 41	12 54
15	47 37.6	21 59.7	115 02.2	16.3	N 6 07.1	14.2	55.1	54	20 11	21 02	22 25	09 07	10 23	11 38	12 54
16	62 37.4	22 00.0	129 37.5	16.3	N 5 52.9	14.3	55.2	56	20 23	21 20	23 29	08 58	10 17	11 35	12 54
17	77 37.2	00.4	144 12.8	16.3	N 5 38.6	14.3	55.2	58	20 38	21 44	■	08 47	10 10	11 32	12 53
18	92 36.9	S 22 00.8	158 48.1	16.2	N 5 24.3	14.4	55.								

G.M.T.		ARIES		VENUS -3.4		MARS +0.7		JUPITER -1.3		SATURN +0.3		STARS			
d	h	G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
3	00	71 38.8	195 43.6	S 18 51.9	108 10.0	S 15 55.0	225 36.5	S 9 33.3	39 58.6	N 10 00.5	Acamar	315 42.7	S 40 25.4		
	01	86 41.2	210 42.8	52.7	123 10.7	54.3	240 38.5	33.5	55 01.2	00.5	Acchernar	335 50.4	S 57 23.5		
	02	101 43.7	225 42.1	53.5	138 11.3	53.7	255 40.5	33.7	70 03.8	00.4	Acrux	173 46.8	S 62 55.7		
	03	116 46.2	240 41.3	.. 54.2	153 12.0	.. 53.1	270 42.6	.. 33.8	85 06.3	.. 00.4	Adhara	255 38.0	S 28 55.6		
	04	131 48.6	255 40.6	55.0	168 12.6	52.4	285 44.6	34.0	100 08.9	00.4	Aldebaran	291 26.8	N 16 27.2		
WEDNESDAY	05	146 51.1	270 39.8	55.8	183 13.3	51.8	300 46.6	34.1	115 11.5	00.3					
	06	161 53.6	285 39.1	S 18 56.6	198 14.0	S 15 51.1	315 48.6	S 9 34.3	130 14.1	N 10 00.3	Alioth	166 49.4	N 56 07.1		
	07	176 56.0	300 38.3	57.4	213 14.6	50.5	330 50.7	34.5	145 16.7	00.2	Alkaid	153 24.8	N 49 27.5		
	08	191 58.5	315 37.5	58.1	228 15.3	49.9	345 52.7	34.6	160 19.3	00.2	Al Na'ir	28 24.7	S 47 06.1		
	09	207 01.0	330 36.8	.. 58.9	243 15.9	.. 49.2	0 54.7	.. 34.8	175 21.9	.. 00.2	Alnilam	276 19.4	S 1 13.0		
THURSDAY	10	222 03.4	345 36.0	18 59.7	258 16.6	48.6	15 56.7	34.9	190 24.5	00.1	Alphard	218 28.2	S 8 31.5		
	11	237 05.9	0 35.3	19 00.5	273 17.2	47.9	30 58.8	35.1	205 27.1	00.1					
	12	252 08.4	15 34.5	S 19 01.3	288 17.9	S 15 47.3	46 00.8	S 9 35.3	220 29.7	N 10 00.1	Alphecca	126 39.1	N 26 48.8		
	13	267 10.8	30 33.8	02.0	303 18.6	46.6	61 02.8	35.4	235 32.3	00.0	Alpheratz	358 17.5	N 28 55.7		
	14	282 13.3	45 33.0	02.8	318 19.2	46.0	76 04.8	35.6	250 34.9	10 00.0	Altair	62 40.5	N 8 47.2		
FRIDAY	15	297 15.7	60 32.2	.. 03.6	333 19.9	.. 45.4	91 06.9	.. 35.7	265 37.5	9 59.9	Ankaa	353 47.6	S 42 28.3		
	16	312 18.2	75 31.5	04.3	348 20.5	44.7	106 08.9	35.9	280 40.1	59.9	Antares	113 07.0	S 26 22.1		
	17	327 20.7	90 30.7	05.1	3 21.2	44.1	121 10.9	36.1	295 42.7	59.9					
	18	342 23.1	105 30.0	S 19 05.9	18 21.8	S 15 43.4	136 12.9	S 9 36.2	310 45.3	N 9 59.8	Arcturus	146 25.9	N 19 20.2		
	19	357 25.6	120 29.2	06.7	33 22.5	42.8	151 15.0	36.4	325 47.9	59.8	Atria	108 39.0	S 68 58.6		
SATURDAY	20	12 28.1	135 28.4	07.4	48 23.2	42.1	166 17.0	36.5	340 50.5	59.8	Avior	234 31.2	S 59 24.4		
	21	27 30.5	150 27.7	.. 08.2	63 23.8	.. 41.5	181 19.0	.. 36.7	355 53.1	.. 59.7	Bellatrix	279 06.9	N 6 19.6		
	22	42 33.0	165 26.9	09.0	78 24.5	40.8	196 21.0	36.9	10 55.7	59.7	Betelgeuse	271 36.5	N 7 24.3		
	23	57 35.5	180 26.2	09.7	93 25.1	40.2	211 23.1	37.0	25 58.3	59.7					
	4	00	72 37.9	195 25.4	S 19 10.5	108 25.8	S 15 39.6	226 25.1	S 9 37.2	41 00.9	N 9 59.6	Canopus	264 10.2	S 52 40.4	
SUNDAY	01	87 40.4	210 24.6	11.2	123 26.5	38.9	241 27.1	37.3	56 03.5	59.6	Capella	281 22.5	N 45 58.3		
	02	102 42.9	225 23.9	12.0	138 27.1	38.3	256 29.1	37.5	71 06.0	59.6	Deneb	49 54.2	N 45 10.5		
	03	117 45.3	240 23.1	.. 12.8	153 27.8	.. 37.6	271 31.2	.. 37.7	86 08.6	.. 59.5	Denebola	183 07.1	N 14 44.3		
	04	132 47.8	255 22.3	13.5	168 28.4	37.0	286 33.2	37.8	101 11.2	59.5	Diphda	349 28.5	S 18 09.1		
	05	147 50.2	270 21.6	14.3	183 29.1	36.3	301 35.2	38.0	116 13.8	59.4					
MONDAY	06	162 52.7	285 20.8	S 19 15.0	198 29.8	S 15 35.7	316 37.3	S 9 38.1	131 16.4	N 9 59.4	Dubhe	194 31.4	N 61 54.6		
	07	177 55.2	300 20.0	15.8	213 30.4	35.0	331 39.3	38.3	146 19.0	59.4	Elmath	278 53.7	N 28 35.2		
	08	192 57.6	315 19.3	16.6	228 31.1	34.4	346 41.3	38.5	161 21.6	59.3	Eltanin	91 01.9	N 51 29.5		
	09	208 00.1	330 18.5	.. 17.3	243 31.7	.. 33.7	1 43.3	.. 38.6	176 24.2	.. 59.3	Enif	34 19.5	N 9 44.2		
	10	223 02.6	345 17.7	18.1	258 32.4	33.1	16 45.4	38.8	191 26.8	59.3	Fomalhaut	16 00.0	S 29 47.1		
TUESDAY	11	238 05.0	0 17.0	18.8	273 33.1	32.4	31 47.4	38.9	206 29.4	59.2					
	12	253 07.5	15 16.2	S 19 19.6	288 33.7	S 15 31.8	46 49.4	S 9 39.1	221 32.0	N 9 59.2	Gacrux	172 38.1	S 56 56.4		
	13	268 10.0	30 15.4	20.3	303 34.4	31.1	61 51.5	39.3	236 34.6	59.2	Gienah	176 26.3	S 17 22.4		
	14	283 12.4	45 14.6	21.1	318 35.0	30.5	76 53.5	39.4	251 37.2	59.1	Hadar	149 35.4	S 60 13.6		
	15	298 14.9	60 13.9	.. 21.8	333 35.7	.. 29.9	91 55.5	.. 39.6	266 39.8	.. 59.1	Hamal	328 37.6	N 23 19.5		
WEDNESDAY	16	313 17.4	75 13.1	22.6	348 36.4	29.2	106 57.5	39.7	281 42.3	59.1	Kaus Aust.	84 27.7	S 34 24.2		
	17	328 19.8	90 12.3	23.3	3 37.0	28.6	121 59.6	39.9	296 44.9	59.0					
	18	343 22.3	105 11.5	S 19 24.1	18 37.7	S 15 27.9	137 01.6	S 9 40.0	311 47.5	N 9 59.0	Kochab	137 19.1	N 74 16.4		
	19	358 24.7	120 10.8	24.8	33 38.3	27.3	152 03.6	40.2	326 50.1	58.9	Markab	14 11.1	N 15 02.7		
	20	13 27.2	135 10.0	25.6	48 39.0	26.6	167 05.7	40.4	341 52.7	58.9	Menkar	314 49.1	N 3 58.5		
THURSDAY	21	28 29.7	150 09.2	.. 26.3	63 39.7	.. 26.0	182 07.7	.. 40.5	356 55.3	.. 58.9	Menkent	148 46.8	S 36 13.3		
	22	43 32.1	165 08.4	27.0	78 40.3	25.3	197 09.7	40.7	11 57.9	58.8	Miaplacidus	221 46.7	S 69 35.2		
	23	58 34.6	180 07.7	27.8	93 41.0	24.7	212 11.8	40.8	27 00.5	58.8					
	5	00	73 37.1	195 06.9	S 19 28.5	108 41.6	S 15 24.0	227 13.8	S 9 41.0	42 03.1	N 9 58.8	Mirfak	309 27.1	N 49 45.6	
	01	88 39.5	210 06.1	29.3	123 42.3	23.4	242 15.8	41.2	57 05.7	58.7	Nunki	76 39.3	S 26 20.3		
FRIDAY	02	103 42.0	225 05.3	30.0	138 43.0	22.7	257 17.8	41.3	72 08.3	58.7	Peacock	54 11.0	S 56 50.3		
	03	118 44.5	240 04.6	.. 30.7	153 43.6	.. 22.1	272 19.9	.. 41.5	87 10.8	.. 58.7	Pollux	244 07.5	N 28 06.0		
	04	133 46.9	255 03.8	31.5	168 44.3	21.4	287 21.9	41.6	102 13.4	58.6	Procyon	245 33.8	N 5 18.3		
	05	148 49.4	270 03.0	32.2	183 45.0	20.8	302 23.9	41.8	117 16.0	58.6					
	06	163 51.8	285 02.2	S 19 33.0	198 45.6	S 15 20.1	317 26.0	S 9 41.9	132 18.6	N 9 58.6	Rasalhague	96 37.2	N 12 34.8		
SATURDAY	07	178 54.3	300 01.4	33.7	213 46.3	19.4	332 28.0	42.1	147 21.2	58.5	Regulus	208 18.3	N 12 06.9		
	08	193 56.8	315 00.7	34.4	228 46.9	18.8	347 30.0	42.3	162 23.8	58.5	Rigel	281 43.3	S 8 13.9		
	09	208 59.2	329 59.9	.. 35.2	243 47.6	.. 18.1	2 32.1	.. 42.4	177 26.4	.. 58.5	Rigel Kent.	140 37.4	S 60 42.5		
	10	224 01.7	344 59.1	35.9	258 48.3	17.5	17 34.1	42.6	192 29.0	58.4	Sabik	102 50.6	S 15 41.4		
	11	239 04.2	359 58.3	36.6	273 48.9	16.8	32 36.1	42.7	207 31.6	58.4					
SUNDAY	12	254 06.6	14 57.5	S 19 37.3	288 49.6	S 15 16.2	47 38.2	S 9 42.9	222 34.1	N 9 58.4	Schedar	350 18.1	N 56 22.7		
	13	269 09.1	29 56.8	38.1	303 50.3	15.5	62 40.2	43.1	237 36.7	58.3	Shaula	97 06.9	S 37 05.1		
	14	284 11.6	44 56.0	38.8	318 50.9	14.9	77 42.2	43.2	252 39.3	58.3	Sirius	259 02.4	S 16 40.2		
	15	299 14.0	59 55.2	.. 39.5	333 51.6	.. 14.2	92 44.2	.. 43.4	267 41.9	.. 58.3	Spica	159 06.1	S 11 00.3		
	16	314 16.5	74 54.4	40.3	348 52.3	13.6	107 46.3	43.5	282 44.5	58.2	Suhail	223 16.5	S 43 18.3		
MONDAY	17	329 18.9	89 53.6	41.0	3 52.9	12.9	122 48.3	43.7	297 47.1	58.2					
	18	344 21.4	104 52.8	S 19 41.7	18 53.6	S 15 12.3	137 50.3	S 9 43.8	312 49.7	N 9 58.2	Vega	81 01.6	N 38 45.3		
	19	359 23.9	119 52.1	42.4	33 54.3	11.6	152 52.4	44.0	327 52.3	58.1	Zuben'ubi	137 42.1	S 15 55.1		
	20	14 26.3	134 51.3	43.2	48 54.9	10.9	167 54.4	44.2	342 54.9	58.1					
	21	29 28.8	149 50.5	.. 43.9	63 55.6	.. 10.3	182 56.4	.. 44.3	357 57.4	.. 58.0					
TUESDAY	22	44 31.3	164 49.7	44.6	78 56.2	09.6	197 58.5	44.5	13 00.0	58.0	Venus	122 47.5	10 59		
	23	59 33.7	179 48.9	45.3	93 56.9	09.0	213 00.5	44.6	28 02.6	58.0	Mars	35 47.9	16 46		
	Mer. Pass. 19 06.3		v -0.8 d 0.8		v 0.7 d 0.6		v 2.0 d 0.2		v 2.6 d 0.0		Jupiter		153 47.2	8 53	
											Saturn		328 23.0	21 12	

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise									
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.		Naut.	Civil		3	4	5	6						
d	h	°	'	°	'	°	'	'	°	h	m	h	m	h	m	h	m	h	m			
3	00	182	35.5	S 22	02.9	260	54.8	16.2	N	3 43.1	14.6	55.4	N 72	07 58	10 03	■	25 54	01 54	04 08	07 01		
	01	197	35.2	03.3		275	30.0	16.2		3 28.5	14.5	55.4	N 70	07 41	09 20	■	25 50	01 50	03 52	06 18		
	02	212	35.0	03.7		290	05.2	16.2		3 14.0	14.7	55.4	68	07 27	08 51	10 54	00 00	01 47	03 40	05 49		
	03	227	34.7	04.0		304	40.4	16.2		2 59.3	14.6	55.5	66	07 16	08 29	09 56	00 04	01 44	03 30	05 28		
	04	242	34.5	04.4		319	15.6	16.1		2 44.7	14.7	55.5	64	07 06	08 12	09 23	00 07	01 42	03 22	05 11		
WEDNESDAY	05	257	34.2	04.7		333	50.7	16.2		2 30.0	14.7	55.5	62	06 57	07 58	08 59	00 10	01 40	03 15	04 58		
	06	272	34.0	S 22	05.1	348	25.9	16.1	N	2 15.3	14.7	55.5	60	06 50	07 45	08 40	00 12	01 38	03 09	04 46		
	07	287	33.7	05.5		3 01.0	16.1			2 00.6	14.8	55.6	N 58	06 43	07 35	08 25	00 14	01 37	03 03	04 36		
	08	302	33.5	05.8		17 36.1	16.0			1 45.8	14.7	55.6	56	06 37	07 25	08 11	00 16	01 35	02 59	04 27		
	09	317	33.2	06.2		32 11.1	16.1			1 31.1	14.8	55.6	54	06 32	07 17	08 00	00 17	01 34	02 54	04 20		
THURSDAY	10	332	33.0	06.5		46 46.2	16.0			1 16.3	14.8	55.7	52	06 26	07 10	07 49	00 19	01 33	02 51	04 13		
	11	347	32.8	06.9		61 21.2	16.0			1 01.5	14.9	55.7	50	06 22	07 02	07 40	00 20	01 32	02 47	04 07		
	12	2 32.5	S 22	07.2		75 56.2	15.9	N	0 46.6	14.8	55.7	N 40	06 01	06 35	07 05	00 25	01 28	02 34	03 43			
	13	17 32.3	07.6			90 31.1	16.0			0 31.8	14.9	55.8	35	05 53	06 24	06 52	00 27	01 27	02 28	03 34		
	14	32 32.0	07.9			105 06.1	15.9			0 16.9	14.9	55.8	30	05 45	06 14	06 40	00 29	01 25	02 24	03 26		
FRIDAY	15	47 31.8	08.3			119 41.0	15.8	N	0 02.0	14.9	55.8	20	05 29	05 57	06 20	00 32	01 23	02 16	03 12			
	16	62 31.5	08.6			134 15.8	15.9	S	0 12.9	14.9	55.8	N 10	05 14	05 40	06 03	00 35	01 21	02 09	03 00			
	17	77 31.3	09.0			148 50.7	15.8			0 27.8	15.0	55.9	0	04 58	05 24	05 46	00 38	01 19	02 02	02 49		
	18	92 31.0	S 22	09.3		163 25.5	15.8	S	0 42.8	14.9	55.9	S 10	04 40	05 07	05 30	00 40	01 17	01 56	02 38			
	19	107 30.8	09.7			178 00.3	15.7			0 57.7	15.0	55.9	20	04 19	04 48	05 12	00 43	01 15	01 49	02 26		
SATURDAY	20	122 30.5	10.0			192 35.0	15.7			1 12.7	15.0	56.0	30	03 51	04 24	04 51	00 46	01 13	01 42	02 13		
	21	137 30.3	10.4			207 09.7	15.6			1 27.7	15.0	56.0	35	03 34	04 10	04 39	00 48	01 12	01 37	02 06		
	22	152 30.0	10.7			221 44.3	15.6			1 42.7	15.0	56.0	40	03 12	03 53	04 25	00 50	01 11	01 32	01 57		
	23	167 29.8	11.0			236 18.9	15.6			1 57.7	15.0	56.1	45	02 44	03 32	04 08	00 52	01 09	01 27	01 47		
	4 00	182 29.5	S 22	11.4		250 53.5	15.5	S	2 12.7	15.0	56.1	S 50	02 03	03 04	03 47	00 55	01 07	01 20	01 35			
SUNDAY	01	197 29.3	11.7			265 28.0	15.5			2 27.7	15.0	56.1	52	01 40	02 50	03 37	00 56	01 06	01 17	01 30		
	02	212 29.0	12.1			280 02.5	15.5			2 42.7	15.1	56.2	54	01 08	02 34	03 26	00 58	01 05	01 14	01 24		
	03	227 28.8	12.4			294 37.0	15.3			2 57.8	15.0	56.2	56	///	02 15	03 13	00 59	01 04	01 10	01 17		
	04	242 28.5	12.7			309 11.3	15.4			3 12.8	15.1	56.2	58	///	01 50	02 58	01 01	01 03	01 06	01 10		
	05	257 28.3	13.1			323 45.7	15.3			3 27.9	15.0	56.3	S 60	///	01 15	02 40	01 03	01 02	01 01	01 01		
MONDAY	06	272 28.0	S 22	13.4		338 20.0	15.2	S	3 42.9	15.1	56.3		Lat.	Sun-set	Twilight		Moonset					
	07	287 27.8	13.8			352 54.2	15.2			3 58.0	15.1	56.3			Civil	Naut.	3	4	5	6		
	08	302 27.5	14.1			7 28.4	15.1			4 13.1	15.0	56.4		°	h	m	h	m	h	m	h	m
	09	317 27.3	14.4			22 02.5	15.1			4 28.1	15.1	56.4	N 72	■	13 37	15 41	13 03	12 29	11 48	10 35		
	10	332 27.0	14.8			36 36.6	15.0			4 43.2	15.1	56.4	N 70	■	14 20	15 59	13 02	12 37	12 06	11 20		
TUESDAY	11	347 26.7	15.1			51 10.6	15.0			4 58.3	15.0	56.5	68	12 46	14 49	16 13	13 02	12 43	12 21	11 50		
	12	2 26.5	S 22	15.4		65 44.6	14.9	S	5 13.3	15.1	56.5	66	13 44	15 11	16 24	13 02	12 48	12 33	12 13			
	13	17 26.2	15.8			80 18.5	14.8			5 28.4	15.1	56.5	64	14 17	15 28	16 34	13 01	12 52	12 43	12 31		
	14	32 26.0	16.1			94 52.3	14.8			5 43.5	15.0	56.6	62	14 41	15 42	16 43	13 01	12 56	12 51	12 46		
	15	47 25.7	16.4			109 26.1	14.7			5 58.5	15.1	56.6	60	15 00	15 55	16 50	13 01	13 00	12 59	12 59		
WEDNESDAY	16	62 25.5	16.8			123 59.8	14.6			6 13.6	15.0	56.7	N 58	15 15	16 05	16 57	13 00	13 03	13 05	13 10		
	17	77 25.2	17.1			138 33.4	14.6			6 28.6	15.1	56.7	56	15 29	16 15	17 03	13 00	13 05	13 11	13 19		
	18	92 25.0	S 22	17.4		153 07.0	14.5	S	6 43.7	15.0	56.7	54	15 40	16 23	17 09	13 00	13 08	13 16	13 28			
	19	107 24.7	17.8			167 40.5	14.4			6 58.7	15.0	56.8	52	15 51	16 31	17 14	13 00	13 10	13 21	13 36		
	20	122 24.5	18.1			182 13.9	14.4			7 13.7	15.0	56.8	50	16 00	16 38	17 18	13 00	13 12	13 26	13 42		
THURSDAY	21	137 24.2	18.4			196 47.3	14.3			7 28.7	15.0	56.8	45	16 19	16 53	17 29	12 59	13 16	13 35	13 57		
	22	152 23.9	18.7			211 20.6	14.2			7 43.7	15.0	56.9	N 40	16 35	17 05	17 39	12 59	13 20	13 43	14 10		
	23	167 23.7	19.1			225 53.8	14.1			7 58.7	15.0	56.9	35	16 48	17 16	17 47	12 59	13 23	13 50	14 20		
	5 00	182 23.4	S 22	19.4		240 26.9	14.1	S	8 13.7	14.9	56.9	30	17 00	17 26	17 56	12 59	13 26	13 56	14 29			
	01	197 23.2	19.7			255 00.0	14.0			8 28.6	15.0	57.0	20	17 20	17 44	18 11	12 58	13 31	14 06	14 46		
FRIDAY	02	212 22.9	20.1			269 33.0	13.9			8 43.6	14.9	57.0	N 10	17 37	18 00	18 26	12 58	13 35	14 15	15 00		
	03	227 22.7	20.4			284 05.9	13.8			8 58.5	14.9	57.1	0	17 54	18 16	18 42	12 57	13 39	14 24	15 13		
	04	242 22.4	20.7			298 38.7	13.7			9 13.4	14.9	57.1	S 10	18 11	18 33	19 00	12 57	13 44	14 33	15 26		
	05	257 22.1	21.0			313 11.4	13.7			9 28.3	14.9	57.1	20	18 29	18 53	19 22	12 57	13 48	14 42	15 40		
	06	272 21.9	S 22	21.3		327 44.1	13.5	S	9 43.2	14.8	57.2	30	18 49	19 17	19 49	12 56	13 53	14 53	15 57			
SATURDAY	07	287 21.6	21.7			342 16.6	13.5			9 58.0	14.8	57.2	35	19 02	19 31	20 07	12 56	13 56	14 59	16 06		
	08	302 21.4	22.0			356 49.1	13.4			10 12.8	14.8	57.2	40	19 16	19 48	20 29	12 55	13 59	15 06	16 17		
	09	317 21.1	22.3			11 21.5	13.3			10 27.6	14.8	57.3	45	19 33	20 09	20 57	12 55	14 03	15 14	16 30		
	10	332 20.8	22.6			25 53.8	13.2			10 42.4	14.7	57.3	S 50	19 54	20 37	21 38	12 54	14 08	15 24	16 46		
	11	347 20.6	22.9			40 26.0	13.2			10 57.1	14.7	57.4</										

	ARIES		VENUS -3.4		MARS +0.8		JUPITER -1.3		SATURN +0.3		STARS		
G.M.T.	G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.	
d h	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "		° ' "	° ' "	
6	00	74 36.2	194 48.1	S 19 46.0	108 57.6	S 15 08.3	228 02.5	S 9 44.8	43 05.2	N 9 57.9	Acamar	315 42.7	S 40 25.4
	01	89 38.7	209 47.3	46.7	123 58.2	07.7	243 04.6	44.9	58 07.8	57.9	Achernar	335 50.4	S 57 23.5
	02	104 41.1	224 46.5	47.5	138 58.9	07.0	258 06.6	45.1	73 10.4	57.9	Acrux	173 46.7	S 62 55.7
	03	119 43.6	239 45.8	48.2	153 59.6	06.3	273 08.6	45.3	88 13.0	57.8	Adhara	255 38.0	S 28 55.6
	04	134 46.1	254 45.0	48.9	169 00.2	05.7	288 10.7	45.4	103 15.6	57.8	Aldebaran	291 26.7	N 16 27.2
05	149 48.5	269 44.2	49.6	184 00.9	05.0	303 12.7	45.6	118 18.1	57.8				
S A T U R N	06	164 51.0	284 43.4	S 19 50.3	199 01.6	S 15 04.4	318 14.7	S 9 45.7	133 20.7	N 9 57.7	Alioth	166 49.4	N 56 07.1
	07	179 53.4	299 42.6	51.0	214 02.2	03.7	333 16.8	45.9	148 23.3	57.7	Alkaid	153 24.8	N 49 27.5
	08	194 55.9	314 41.8	51.7	229 02.9	03.1	348 18.8	46.0	163 25.9	57.7	Al Na'ir	28 24.8	S 47 06.7
	09	209 58.4	329 41.0	52.5	244 03.6	02.4	3 20.8	46.2	178 28.5	57.6	Alnilam	276 19.3	S 1 13.0
	10	225 00.8	344 40.2	53.2	259 04.2	01.7	18 22.9	46.4	193 31.1	57.6	Alphard	218 28.2	S 8 31.5
R E D U C E D	11	240 03.3	359 39.4	53.9	274 04.9	01.1	33 24.9	46.5	208 33.7	57.6			
	12	255 05.8	14 38.6	S 19 54.6	289 05.6	S 15 00.4	48 26.9	S 9 46.7	223 36.2	N 9 57.6	Alphecca	126 39.1	N 26 48.7
	13	270 08.2	29 37.8	55.3	304 06.2	14 59.8	63 29.0	46.8	238 38.8	57.5	Alpheratz	358 17.5	N 28 55.7
	14	285 10.7	44 37.0	56.0	319 06.9	59.1	78 31.0	47.0	253 41.4	57.5	Altair	62 40.5	N 8 47.2
	15	300 13.2	59 36.2	56.7	334 07.6	58.4	93 33.0	47.1	268 44.0	57.5	Ankaa	353 47.6	S 42 28.3
D A Y	16	315 15.6	74 35.4	57.4	349 08.2	57.8	108 35.1	47.3	283 46.6	57.4	Antares	113 07.0	S 26 22.1
	17	330 18.1	89 34.6	58.1	4 08.9	57.1	123 37.1	47.4	298 49.2	57.4			
	18	345 20.5	104 33.8	S 19 58.8	19 09.6	S 14 56.5	138 39.1	S 9 47.6	313 51.8	N 9 57.4	Arcturus	146 25.9	N 19 20.2
	19	0 23.0	119 33.0	19 59.5	34 10.2	55.8	153 41.2	47.8	328 54.3	57.3	Atria	108 39.0	S 68 58.6
	20	15 25.5	134 32.2	20 00.2	49 10.9	55.1	168 43.2	47.9	343 56.9	57.3	Avior	234 31.2	S 59 24.4
7	21	30 27.9	149 31.4	00.9	64 11.6	54.5	183 45.2	48.1	358 59.5	57.3	Bellatrix	279 06.9	N 6 19.6
	22	45 30.4	164 30.6	01.6	79 12.2	53.8	198 47.3	48.2	14 02.1	57.2	Betelgeuse	271 36.5	N 7 24.3
	23	60 32.9	179 29.8	02.3	94 12.9	53.1	213 49.3	48.4	29 04.7	57.2			
	00	75 35.3	194 29.0	S 20 03.0	109 13.6	S 14 52.5	228 51.4	S 9 48.5	44 07.3	N 9 57.2	Canopus	264 10.2	S 52 40.5
	01	90 37.8	209 28.2	03.7	124 14.2	51.8	243 53.4	48.7	59 09.8	57.1	Capella	281 22.5	N 45 58.3
S U N	02	105 40.3	224 27.4	04.4	139 14.9	51.2	258 55.4	48.8	74 12.4	57.1	Deneb	49 54.2	N 45 10.5
	03	120 42.7	239 26.6	05.1	154 15.6	50.5	273 57.5	49.0	89 15.0	57.1	Denebola	183 07.1	N 14 44.3
	04	135 45.2	254 25.8	05.7	169 16.2	49.8	288 59.5	49.2	104 17.6	57.0	Diphda	349 28.5	S 18 09.1
	05	150 47.7	269 25.0	06.4	184 16.9	49.2	304 01.5	49.3	119 20.2	57.0			
	06	165 50.1	284 24.2	S 20 07.1	199 17.6	S 14 48.5	319 03.6	S 9 49.5	134 22.8	N 9 57.0	Dubhe	194 31.4	N 61 54.5
D A Y	07	180 52.6	299 23.4	07.8	214 18.3	47.8	334 05.6	49.6	149 25.3	56.9	Elnath	278 53.7	N 28 35.2
	08	195 55.1	314 22.6	08.5	229 18.9	47.2	349 07.6	49.8	164 27.9	56.9	Eltanin	91 01.9	N 51 29.5
	09	210 57.5	329 21.8	09.2	244 19.6	46.5	4 09.7	49.9	179 30.5	56.9	Enif	34 19.5	N 9 44.2
	10	226 00.0	344 21.0	09.9	259 20.3	45.9	19 11.7	50.1	194 33.1	56.8	Fomalhaut	16 00.0	S 29 47.1
	11	241 02.4	359 20.2	10.6	274 20.9	45.2	34 13.8	50.2	209 35.7	56.8			
M O N	12	256 04.9	14 19.4	S 20 11.2	289 21.6	S 14 44.5	49 15.8	S 9 50.4	224 38.3	N 9 56.8	Gacrux	172 38.1	S 56 56.4
	13	271 07.4	29 18.6	11.9	304 22.3	43.9	64 17.8	50.5	239 40.8	56.7	Gienah	176 26.3	S 17 22.4
	14	286 09.8	44 17.8	12.6	319 22.9	43.2	79 19.9	50.7	254 43.4	56.7	Hadar	149 35.4	S 60 13.6
	15	301 12.3	59 17.0	13.3	334 23.6	42.5	94 21.9	50.9	269 46.0	56.7	Hamal	328 37.6	N 23 19.5
	16	316 14.8	74 16.2	14.0	349 24.3	41.9	109 23.9	51.0	284 48.6	56.7	Kaus Aust.	84 27.7	S 34 24.2
T U E	17	331 17.2	89 15.4	14.6	4 25.0	41.2	124 26.0	51.2	299 51.2	56.6			
	18	346 19.7	104 14.5	S 20 15.3	19 25.6	S 14 40.5	139 28.0	S 9 51.3	314 53.7	N 9 56.6	Kochab	137 19.1	N 74 16.4
	19	1 22.2	119 13.7	16.0	34 26.3	39.9	154 30.1	51.5	329 56.3	56.6	Markab	14 11.1	N 15 02.7
	20	16 24.6	134 12.9	16.7	49 27.0	39.2	169 32.1	51.6	344 58.9	56.5	Menkar	314 49.1	N 3 58.5
	21	31 27.1	149 12.1	17.3	64 27.6	38.5	184 34.1	51.8	0 01.5	56.5	Menkent	148 46.7	S 36 13.3
W E D	22	46 29.5	164 11.3	18.0	79 28.3	37.9	199 36.2	51.9	15 04.1	56.5	Miaplacidus	221 46.6	S 69 35.2
	23	61 32.0	179 10.5	18.7	94 29.0	37.2	214 38.2	52.1	30 06.6	56.4			
	00	76 34.5	194 09.7	S 20 19.4	109 29.7	S 14 36.5	229 40.2	S 9 52.2	45 09.2	N 9 56.4	Mirfak	309 27.1	N 49 45.6
	01	91 36.9	209 08.9	20.0	124 30.3	35.9	244 42.3	52.4	60 11.8	56.4	Nunki	76 39.3	S 26 20.3
	02	106 39.4	224 08.1	20.7	139 31.0	35.2	259 44.3	52.5	75 14.4	56.3	Peacock	54 11.0	S 56 50.3
T H U	03	121 41.9	239 07.2	21.4	154 31.7	34.5	274 46.4	52.7	90 17.0	56.3	Pollux	244 07.5	N 28 06.0
	04	136 44.3	254 06.4	22.0	169 32.3	33.9	289 48.4	52.8	105 19.5	56.3	Procyon	245 33.8	N 5 18.3
	05	151 46.8	269 05.6	22.7	184 33.0	33.2	304 50.4	53.0	120 22.1	56.3			
	06	166 49.3	284 04.8	S 20 23.4	199 33.7	S 14 32.5	319 52.5	S 9 53.2	135 24.7	N 9 56.2	Rasalhague	96 37.2	N 12 34.7
	07	181 51.7	299 04.0	24.0	214 34.4	31.9	334 54.5	53.3	150 27.3	56.2	Regulus	208 18.2	N 12 06.9
F R I	08	196 54.2	314 03.2	24.7	229 35.0	31.2	349 56.6	53.5	165 29.9	56.2	Rigel	281 43.2	S 8 13.9
	09	211 56.7	329 02.3	25.3	244 35.7	30.5	4 58.6	53.6	180 32.4	56.1	Rigel Kent.	140 37.3	S 60 42.5
	10	226 59.1	344 01.5	26.0	259 36.4	29.9	20 00.6	53.8	195 35.0	56.1	Sabik	102 50.5	S 15 41.4
	11	242 01.6	359 00.7	26.7	274 37.0	29.2	35 02.7	53.9	210 37.6	56.1			
	12	257 04.0	13 59.9	S 20 27.3	289 37.7	S 14 28.5	50 04.7	S 9 54.1	225 40.2	N 9 56.0	Schedar	350 18.1	N 56 22.7
S A	13	272 06.5	28 59.1	28.0	304 38.4	27.8	65 06.8	54.2	240 42.8	56.0	Shaula	97 06.9	S 37 05.1
	14	287 09.0	43 58.3	28.6	319 39.1	27.2	80 08.8	54.4	255 45.3	56.0	Sirius	259 02.4	S 16 40.2
	15	302 11.4	58 57.4	29.3	334 39.7	26.5	95 10.8	54.5	270 47.9	56.0	Spica	159 06.1	S 11 00.3
	16	317 13.9	73 56.6	30.0	349 40.4	25.8	110 12.9	54.7	285 50.5	55.9	Suhail	223 16.5	S 43 18.3
	17	332 16.4	88 55.8	30.6	4 41.1	25.2	125 14.9	54.8	300 53.1	55.9			
S A	18	347 18.8	103 55.0	S 20 31.3	19 41.8	S 14 24.5	140 17.0	S 9 55.0	315 55.6	N 9 55.9	Vega	81 01.6	N 38 45.3
	19	2 21.3	118 54.2	31.9	34 42.4	23.8	155 19.0	55.1	330 58.2	55.8	Zuben'ubi	137 42.1	S 15 55.1
	20	17 23.8	133 53.3	32.6	49 43.1	23.1	170 21.1	55.3	346 00.8	55.8			
	21	32 26.2	148 52.5	33.2	64 43.8	22.5	185 23.1	55.5	1 03.4	55.8			
	22	47 28.7	163 51.7	33.9	79 44.5	21.8	200 25.1	55.6	16 05.9	55.7	Venus	118 53.7	h 11 03
S A	23	62 31.2	178 50.9	34.5	94 45.1	21.1	215 27.2	55.8	31 08.5	55.7	Mars	33 38.3	h 16 42
										Jupiter	153 16.1	h 8 43	
										Saturn	328 32.0	h 21 00	
Mer. Pass. 18 54.5													
v -0.8 d 0.7 v 0.7 d 0.7 v 2.0 d 0.2 v 2.6 d 0.0													

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise				
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	6	7	8	9
d	h	°	'	°	'	°	'	°	h	m	h	m	h	m	h	m
6	00	182 17.2	S 22 27.0	229 15.9	11.7	S 14 05.5	14.1	57.8	N 72	08 05	10 16	07 01				
	01	197 16.9	27.3	243 46.6	11.7	14 19.6	14.2	57.9	N 70	07 47	09 29	06 18				
	02	212 16.7	27.6	258 17.3	11.6	14 33.2	14.1	57.9	68	07 33	08 58	11 17	05 49	08 56		
	03	227 16.4	27.9	272 47.9	11.4	14 47.9	14.0	58.0	66	07 21	08 35	10 06	05 28	07 52		
	04	242 16.1	28.2	287 18.3	11.4	15 01.9	14.0	58.0	64	07 11	08 17	09 31	05 11	07 17	10 08	
7	05	257 15.9	28.5	301 48.7	11.2	15 15.9	13.9	58.0	62	07 02	08 02	09 05	04 58	06 52	09 02	
	06	272 15.6	S 22 28.8	316 18.9	11.1	S 15 29.8	13.9	58.1	60	06 54	07 50	08 46	04 46	06 32	08 27	10 20
	07	287 15.3	29.1	330 49.6	11.0	15 43.7	13.7	58.1	N 58	06 47	07 39	08 29	04 36	06 16	08 02	09 43
	08	302 15.1	29.4	345 19.6	10.9	15 57.4	13.8	58.2	56	06 41	07 29	08 16	04 27	06 03	07 42	09 17
	09	317 14.8	29.7	359 48.9	10.7	16 11.2	13.7	58.2	54	06 35	07 21	08 04	04 20	05 51	07 26	08 56
8	10	332 14.5	30.0	14 18.6	10.6	16 24.9	13.6	58.2	52	06 30	07 13	07 53	04 13	05 41	07 12	08 38
	11	347 14.3	30.3	28 48.2	10.5	16 38.5	13.5	58.3	50	06 25	07 06	07 44	04 07	05 31	06 59	08 23
	12	2 14.0	S 22 30.6	43 17.7	10.4	S 16 52.0	13.5	58.3	45	06 14	06 51	07 24	03 54	05 12	06 34	07 53
	13	17 13.8	30.9	57 47.1	10.2	17 05.5	13.4	58.3	N 40	06 04	06 38	07 08	03 43	04 57	06 14	07 30
	14	32 13.5	31.2	72 16.3	10.2	17 18.9	13.3	58.4	35	05 55	06 27	06 54	03 34	04 43	05 57	07 11
9	15	47 13.2	31.5	86 45.5	10.0	17 32.2	13.2	58.4	30	05 47	06 17	06 43	03 26	04 32	05 42	06 54
	16	62 13.0	31.8	101 14.5	9.8	17 45.4	13.2	58.5	20	05 31	05 58	06 22	03 12	04 13	05 18	06 26
	17	77 12.7	32.1	115 43.3	9.8	17 58.6	13.1	58.5	N 10	05 16	05 42	06 04	03 00	03 56	04 57	06 03
	18	92 12.4	S 22 32.4	130 12.1	9.6	S 18 11.7	13.0	58.5	0	04 59	05 25	05 48	02 49	03 40	04 38	05 40
	19	107 12.2	32.7	144 40.7	9.5	18 24.7	12.9	58.6	S 10	04 41	05 08	05 31	02 38	03 25	04 18	05 18
10	20	122 11.9	33.0	159 09.2	9.3	18 37.6	12.9	58.6	20	04 19	04 48	05 13	02 26	03 09	03 58	04 55
	21	137 11.6	33.3	173 37.5	9.2	18 50.5	12.7	58.6	30	03 51	04 24	04 51	02 13	02 50	03 34	04 28
	22	152 11.4	33.6	188 05.7	9.1	19 03.2	12.7	58.7	35	03 33	04 10	04 39	02 06	02 39	03 20	04 12
	23	167 11.1	33.8	202 33.8	8.9	19 15.9	12.5	58.7	40	03 11	03 52	04 25	01 57	02 27	03 05	03 53
	24	182 10.8	S 22 34.1	217 01.7	8.9	S 19 28.4	12.5	58.8	45	02 42	03 31	04 07	01 47	02 13	02 46	03 31
11	01	197 10.6	34.4	231 29.6	8.6	19 40.9	12.4	58.8	S 50	02 00	03 03	03 46	01 35	01 55	02 22	03 02
	02	212 10.3	34.7	245 57.2	8.6	19 53.3	12.3	58.8	52	01 36	02 48	03 36	01 30	01 47	02 11	02 49
	03	227 10.0	35.0	260 24.8	8.4	20 05.6	12.2	58.9	54	01 00	02 32	03 24	01 24	01 38	01 59	02 33
	04	242 09.7	35.3	274 52.2	8.2	20 17.8	12.1	58.9	56	///	02 12	03 11	01 17	01 27	01 44	02 14
	05	257 09.5	35.6	289 19.4	8.2	20 29.9	11.9	58.9	58	///	01 45	02 55	01 10	01 16	01 27	01 51
12	06	272 09.2	S 22 35.8	303 46.6	8.0	S 20 41.8	11.9	59.0	S 60	///	01 06	02 36	01 01	01 02	01 07	01 21
	07	287 08.9	36.1	318 13.6	7.8	20 53.7	11.8	59.0								
	08	302 08.7	36.4	332 40.4	7.7	21 05.5	11.6	59.0	Lat.	Sun-set	Twilight		Moonset			
	09	317 08.4	36.7	347 07.1	7.6	21 17.1	11.6	59.1			Civil	Naut.	6	7	8	9
	10	332 08.1	37.0	1 33.7	7.4	21 28.7	11.4	59.1	°	h	h	h	h	h	h	h
13	11	347 07.9	37.3	16 00.1	7.3	21 40.1	11.3	59.1	N 72	13 26	15 37	10 35				
	12	2 07.6	S 22 37.5	30 26.4	7.2	S 21 51.4	11.2	59.2	N 70	14 14	15 55	11 20				
	13	17 07.3	37.8	44 52.6	7.0	22 02.6	11.1	59.2	68	12 26	14 44	16 10	11 50	10 32		
	14	32 07.0	38.1	59 18.6	6.9	22 13.7	11.0	59.2	66	13 36	15 07	16 22	12 13	11 38		
	15	47 06.8	38.4	73 44.5	6.7	22 24.7	10.8	59.3	64	14 12	15 25	16 32	12 31	12 14	11 25	
14	16	62 06.5	38.6	88 10.2	6.6	22 35.5	10.7	59.3	62	14 37	15 40	16 41	12 46	12 40	12 32	
	17	77 06.2	38.9	102 35.8	6.5	22 46.2	10.6	59.3	60	14 57	15 53	16 49	12 59	13 01	13 07	13 28
	18	92 06.0	S 22 39.2	117 01.3	6.3	S 22 56.8	10.4	59.4	N 58	15 13	16 04	16 56	13 10	13 17	13 33	14 05
	19	107 05.7	39.5	131 26.6	6.2	23 07.2	10.3	59.4	56	15 27	16 13	17 02	13 19	13 32	13 53	14 32
	20	122 05.4	39.7	145 51.8	6.0	23 17.5	10.2	59.4	54	15 39	16 22	17 08	13 28	13 44	14 10	14 53
15	21	137 05.1	40.0	160 16.8	5.9	23 27.7	10.0	59.5	52	15 50	16 30	17 13	13 36	13 55	14 25	15 11
	22	152 04.9	40.3	174 41.7	5.8	23 37.7	9.9	59.5	50	15 59	16 37	17 18	13 42	14 05	14 38	15 26
	23	167 04.6	40.6	189 06.5	5.6	23 47.6	9.7	59.5	45	16 19	16 52	17 29	13 57	14 26	15 04	15 56
	24	182 04.3	S 22 40.8	203 31.1	5.5	S 23 57.3	9.6	59.6	N 40	16 35	17 05	17 39	14 10	14 43	15 25	16 20
	01	197 04.0	41.1	217 55.6	5.4	24 06.9	9.5	59.6	35	16 48	17 16	17 48	14 20	14 57	15 43	16 39
16	02	212 03.8	41.4	232 20.0	5.2	24 16.4	9.3	59.6	30	17 00	17 26	17 56	14 29	15 09	15 58	16 56
	03	227 03.5	41.6	246 44.2	5.1	24 25.7	9.1	59.7	20	17 21	17 45	18 12	14 46	15 31	16 24	17 25
	04	242 03.2	41.9	261 08.3	5.0	24 34.8	9.0	59.7	N 10	17 38	18 01	18 27	15 00	15 49	16 46	17 49
	05	257 02.9	42.2	275 32.3	4.8	24 43.8	8.9	59.7	0	17 55	18 18	18 44	15 13	16 07	17 07	18 12
	06	272 02.7	S 22 42.4	289 56.1	4.7	S 24 52.7	8.7	59.7	S 10	18 12	18 35	19 02	15 26	16 24	17 28	18 34
17	07	287 02.4	42.7	304 19.8	4.6	25 01.4	8.5	59.8	20	18 30	18 55	19 24	15 40	16 43	17 50	18 59
	08	302 02.1	43.0	318 43.4	4.4	25 09.9	8.4	59.8	30	18 52	19 19	19 52	15 57	17 05	18 16	19 27
	09	317 01.8	43.2	333 06.8	4.3	25 18.3	8.2	59.8	35	19 04	19 34	20 10	16 06	17 18	18 32	19 44
	10	332 01.6	43.5	347 30.1	4.2	25 26.5	8.0	59.9	40	19 19	19 51	20 32	16 17	17 33	18 50	20 03
	11	347 01.3	43.8	1 53.3	4.0	25 34.5	7.9	59.9	45	19 36	20 13	21 01	16 30	17 51	19 12	20 27
18	12	2 01.0	S 22 44.0	16 16.3	4.0	S 25 42.4	7.7	59.9	S 50	19 57	20 41	21 44	16 46	18 13	19 39	20 58
	13	17 00.7	44.3	30 39.3	3.8	25 50.1	7.5	59.9	52	20 08	20 55	22 09	16 54	18 23	19 53	21 13
	14	32 00.5	44.5	45 02.1	3.7	25 57.6	7.3	60.0	54	20 19	21 12	22 45	17 02	18 35	20 08	21 30
	15	47 00.2	44.8	59 24.8	3.5	26 04.9	7.2	60.0	56	20 33	21 33	///	17 12	18 49	20 27	21 52
	16	61 59.9	45.1	73 47.3	3.5	26 12.1	7.0	60.0	58	20 49	21 59					

Ver. Pass

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise							
		G.H.A.	Dec.	G.H.A.	°	Dec.	d	H.P.		Naut.	Civil		9	10	11	12				
d	h	°	'	°	'	°	'	'	°	h	m	h	m	h	m	h	m			
9	00	181	57.7	S 22	47.1	188	43.9	2.6	S 27	02.9	5.5	60.2	N 72	08 12	10 29	■	■			
	01	196	57.4		47.4	203	05.5	2.5	27	08.4	5.3	60.2	N 70	07 53	09 37	■	■			
	02	211	57.1		47.6	217	27.0	2.4	27	13.7	5.1	60.3	68	07 38	09 05	■	■			
	03	226	56.9	..	47.9	231	48.4	2.3	27	18.8	5.0	60.3	66	07 25	08 41	10 15	■	13 42		
	04	241	56.6		48.1	246	09.7	2.2	27	23.8	4.7	60.3	64	07 15	08 22	09 37	■	13 00		
TUESDAY	05	256	56.3		48.3	260	30.9	2.2	27	28.5	4.5	60.3	62	07 06	08 07	09 11	■	12 42		
	06	271	56.0	S 22	48.6	274	52.1	2.0	S 27	33.0	4.3	60.3	60	06 58	07 54	08 50	10 20	11 36	12 02	12 10
	07	286	55.7		48.8	289	13.1	2.0	27	37.3	4.1	60.4	N 58	06 51	07 43	08 34	09 43	10 56	11 34	11 52
	08	301	55.5		49.1	303	34.1	1.9	27	41.4	3.9	60.4	56	06 44	07 33	08 20	09 17	10 29	11 13	11 37
	09	316	55.2	..	49.3	317	55.0	1.8	27	45.3	3.7	60.4	54	06 38	07 24	08 07	08 56	10 07	10 55	11 24
WEDNESDAY	10	331	54.9		49.6	332	15.8	1.8	27	49.0	3.5	60.4	52	06 33	07 16	07 56	08 38	09 49	10 40	11 12
	11	346	54.6		49.8	346	36.6	1.7	27	52.5	3.3	60.4	50	06 28	07 09	07 47	08 23	09 34	10 26	11 02
	12	1	54.3	S 22	50.1	0	57.3	1.6	S 27	55.8	3.1	60.5	45	06 16	06 53	07 27	07 53	09 03	09 59	10 40
	13	16	54.1		50.3	15	17.9	1.6	27	58.9	2.9	60.5	N 40	06 06	06 40	07 11	07 30	08 39	09 37	10 23
	14	31	53.8		50.5	29	38.5	1.5	28	01.8	2.6	60.5	35	05 57	06 29	06 57	07 11	08 20	09 19	10 08
THURSDAY	15	46	53.5	..	50.8	43	59.0	1.4	28	04.4	2.5	60.5	30	05 49	06 19	06 45	06 54	08 03	09 04	09 55
	16	61	53.2		51.0	58	19.4	1.4	28	06.9	2.2	60.5	20	05 33	06 00	06 24	06 26	07 34	08 37	09 33
	17	76	52.9		51.3	72	39.8	1.4	28	09.1	2.0	60.5	N 10	05 17	05 43	06 06	06 03	07 10	08 14	09 14
	18	91	52.6	S 22	51.5	87	00.2	1.3	S 28	11.1	1.8	60.6	0	05 01	05 27	05 49	05 40	06 47	07 53	08 56
	19	106	52.4		51.7	101	20.5	1.2	28	12.9	1.6	60.6	S 10	04 42	05 09	05 32	05 18	06 24	07 32	08 38
FRIDAY	20	121	52.1		52.0	115	40.7	1.2	28	14.5	1.4	60.6	20	04 20	04 49	05 13	04 55	05 59	07 09	08 18
	21	136	51.8	..	52.2	130	00.9	1.2	28	15.9	1.2	60.6	30	03 51	04 25	04 52	04 28	05 31	06 42	07 55
	22	151	51.5		52.4	144	21.1	1.2	28	17.1	0.9	60.6	35	03 33	04 10	04 39	04 12	05 14	06 26	07 42
	23	166	51.2		52.7	158	41.3	1.1	28	18.0	0.7	60.6	40	03 11	03 52	04 25	03 53	04 55	06 08	07 27
													45	02 41	03 30	04 07	03 31	04 31	05 45	07 08
SATURDAY	00	181	51.0	S 22	52.9	173	01.4	1.1	S 28	18.7	0.5	60.6	S 50	01 58	03 01	03 45	03 02	04 00	05 17	06 45
	01	196	50.7		53.1	187	21.5	1.1	28	19.2	0.3	60.6	52	01 32	02 47	03 35	02 49	03 45	05 03	06 34
	02	211	50.4		53.4	201	41.6	1.1	28	19.5	0.1	60.7	54	00 54	02 30	03 23	02 33	03 27	04 47	06 22
	03	226	50.1	..	53.6	216	01.7	1.0	28	19.6	0.2	60.7	56	///	02 09	03 09	02 14	03 06	04 28	06 07
	04	241	49.8		53.8	230	21.7	1.1	28	19.4	0.3	60.7	58	///	01 41	02 53	01 51	02 39	04 04	05 50
SUNDAY	05	256	49.5		54.1	244	41.8	1.0	28	19.1	0.6	60.7	S 60	///	00 59	02 34	01 21	02 01	03 32	05 29
	06	271	49.2	S 22	54.3	259	01.8	1.1	S 28	18.5	0.8	60.7								
	07	286	49.0		54.5	273	21.9	1.0	28	17.7	1.1	60.7	Lat.	Sun-set	Twilight		Moonset			
	08	301	48.7		54.7	287	41.9	1.1	28	16.6	1.2	60.7			Civil	Naut.	9	10	11	12
	09	316	48.4	..	55.0	302	02.0	1.0	28	15.4	1.5	60.7	o	h	m	h	m	h	m	h
MONDAY	10	331	48.1		55.2	316	22.0	1.1	28	13.9	1.7	60.7	N 72	■	13 17	15 34	■	■	■	■
	11	346	47.8		55.4	330	42.1	1.1	28	12.2	1.9	60.7	N 70	■	14 08	15 52	■	■	■	■
	12	1	47.5	S 22	55.6	345	02.2	1.1	S 28	10.3	2.1	60.7	68	■	14 41	16 07	■	■	■	■
	13	16	47.3		55.9	359	22.3	1.1	28	08.2	2.3	60.8	66	13 30	15 04	16 20	■	■	■	16 55
	14	31	47.0		56.1	13	42.4	1.2	28	05.9	2.6	60.8	64	14 08	15 23	16 30	■	■	■	17 35
TUESDAY	15	46	46.7	..	56.3	28	02.6	1.2	28	03.3	2.8	60.8	62	14 34	15 38	16 40	■	■	15 45	18 03
	16	61	46.4		56.5	42	22.8	1.2	28	00.5	3.0	60.8	60	14 55	15 51	16 48	13 28	14 33	16 24	18 24
	17	76	46.1		56.7	56	43.0	1.3	27	57.5	3.2	60.8	N 58	15 12	16 03	16 55	14 05	15 12	16 51	18 41
	18	91	45.8	S 22	57.0	71	03.3	1.3	S 27	54.3	3.4	60.8	56	15 26	16 12	17 01	14 32	15 39	17 12	18 55
	19	106	45.5		57.2	85	23.6	1.3	27	50.9	3.6	60.8	54	15 38	16 21	17 07	14 53	16 00	17 29	19 08
WEDNESDAY	20	121	45.2		57.4	99	43.9	1.4	27	47.3	3.9	60.8	52	15 49	16 29	17 13	15 11	16 18	17 44	19 19
	21	136	45.0	..	57.6	114	04.3	1.5	27	43.4	4.0	60.8	50	15 58	16 36	17 18	15 26	16 33	17 57	19 28
	22	151	44.7		57.8	128	24.8	1.5	27	39.4	4.3	60.8	45	16 19	16 52	17 29	15 56	17 04	18 24	19 48
	23	166	44.4		58.0	142	45.3	1.5	27	35.1	4.5	60.8	N 40	16 35	17 05	17 39	16 20	17 28	18 45	20 05
	00	181	44.1	S 22	58.3	157	05.8	1.6	S 27	30.6	4.7	60.8	35	16 49	17 17	17 48	16 39	17 47	19 02	20 18
THURSDAY	01	196	43.8		58.5	171	26.4	1.7	27	25.9	4.9	60.8	30	17 01	17 27	17 57	16 56	18 04	19 17	20 30
	02	211	43.5		58.7	185	47.1	1.8	27	21.0	5.1	60.8	20	17 21	17 46	18 13	17 25	18 32	19 42	20 50
	03	226	43.2	..	58.9	200	07.9	1.8	27	15.9	5.3	60.8	N 10	17 39	18 02	18 28	17 49	18 56	20 03	21 08
	04	241	42.9		59.1	214	28.7	1.9	27	10.6	5.5	60.8	0	17 56	18 19	18 45	18 12	19 18	20 23	21 24
	05	256	42.7		59.3	228	49.6	1.9	27	05.1	5.7	60.8	S 10	18 14	18 37	19 04	18 34	19 41	20 43	21 40
FRIDAY	06	271	42.4	S 22	59.5	243	10.5	2.1	S 26	59.4	5.9	60.8	20	18 32	18 57	19 26	18 59	20 05	21 04	21 57
	07	286	42.1		59.7	257	31.6	2.1	26	53.5	6.1	60.8	30	18 54	19 21	19 54	19 27	20 32	21 29	22 16
	08	301	41.8	22	59.9	271	52.7	2.2	26	47.4	6.4	60.8	35	19 07	19 36	20 13	19 44	20 49	21 43	22 27
	09	316	41.5		60.2	286	13.9	2.3	26	41.0	6.5	60.8	40	19 21	19 54	20 35	20 03	21 08	21 59	22 40
	10	331	41.2	00.4		300	35.2	2.4	26	34.5	6.7	60.8	45	19 39	20 16	21 05	20 27	21 30	22 19	22 55
SATURDAY	11	346	40.9		60.6	314	56.6	2.5	26	27.8	6.9	60.8	S 50	20 01	20 45	21 48	20 58	21 59	22 43	23 13
	12	1	40.6	S 23	00.8	329	18.1	2.5	S 26	20.9	7.1	60.7	52	20 11	20 59	22 14	21 13	22 14	22 55	23 22
	13	16	40.4		01.0	343	39.6	2.7	26	13.8	7.3	60.7	54	20 23	21 17	22 54	21 30	22 30	23 08	23 31
	14	31	40.1		01.2	358	01.3	2.8	26	06.5	7									

	ARIES		VENUS -3.4		MARS +0.8		JUPITER -1.4		SATURN +0.3		STARS			
G.M.T.	G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	°	°	°	°	°	°	°	°	°	°	°		°	°
12 00	80 31.0	192 49.5	S 21 19.0	110 34.7	S 13 31.5	232 56.6	S 10 06.7	49 16.2	N 9 53.7			Acamar	315 42.7	S 40 25.5
01	95 33.5	207 48.7	19.6	125 35.4	30.8	247 58.6	06.8	64 18.8	53.7			Achernar	335 50.5	S 57 23.5
02	110 36.0	222 47.8	20.1	140 36.1	30.1	263 00.7	07.0	79 21.3	53.7			Acruz	173 46.6	S 62 55.7
03	125 38.4	237 46.9	20.7	155 36.8	29.4	278 02.8	07.1	94 23.9	53.7			Adhara	255 38.0	S 28 55.6
04	140 40.9	252 46.1	21.3	170 37.4	28.7	293 04.8	07.3	109 26.5	53.6			Aldebaran	291 26.7	N 16 27.2
05	155 43.4	267 45.2	21.8	185 38.1	28.1	308 06.9	07.4	124 29.0	53.6					
06	170 45.8	282 44.4	S 21 22.4	200 38.8	S 13 27.4	323 08.9	S 10 07.6	139 31.6	N 9 53.6			Alioth	166 49.3	N 56 07.1
07	185 48.3	297 43.5	23.0	215 39.5	26.7	338 11.0	07.7	154 34.1	53.6			Alkaid	153 24.8	N 49 27.5
08	200 50.8	312 42.6	23.5	230 40.2	26.0	353 13.0	07.9	169 36.7	53.5			Al Na'ir	28 24.8	S 47 06.7
F 09	215 53.2	327 41.8	24.1	245 40.9	25.3	8 15.1	08.0	184 39.3	53.5			Alnilam	276 19.3	S 1 13.0
R 10	230 55.7	342 40.9	24.6	260 41.5	24.6	23 17.1	08.2	199 41.8	53.5			Alphard	218 28.1	S 8 31.5
I 11	245 58.1	357 40.1	25.2	275 42.2	23.9	38 19.2	08.3	214 44.4	53.5					
D 12	261 00.6	12 39.2	S 21 25.8	290 42.9	S 13 23.2	53 21.2	S 10 08.5	229 47.0	N 9 53.4			Alphecca	126 39.1	N 26 48.7
A 13	276 03.1	27 38.3	26.3	305 43.6	22.5	68 23.3	08.6	244 49.5	53.4			Alpheratz	358 17.5	N 28 55.7
Y 14	291 05.5	42 37.5	26.9	320 44.3	21.9	83 25.3	08.7	259 52.1	53.4			Altair	62 40.5	N 8 47.2
15	306 08.0	57 36.6	27.4	335 45.0	21.2	98 27.4	08.9	274 54.7	53.4			Ankaa	353 47.7	S 42 28.3
16	321 10.5	72 35.7	28.0	350 45.7	20.5	113 29.5	09.0	289 57.2	53.3			Antares	113 06.9	S 26 22.1
17	336 12.9	87 34.9	28.5	5 46.3	19.8	128 31.5	09.2	304 59.8	53.3					
18	351 15.4	102 34.0	S 21 29.1	20 47.0	S 13 19.1	143 33.6	S 10 09.3	320 02.3	N 9 53.3			Arcturus	146 25.8	N 19 20.1
19	6 17.9	117 33.2	29.6	35 47.7	18.4	158 35.6	09.5	335 04.9	53.3			Atria	108 38.9	S 68 58.6
20	21 20.3	132 32.3	30.2	50 48.4	17.7	173 37.7	09.6	350 07.5	53.3			Avior	234 31.2	S 59 24.4
21	36 22.8	147 31.4	30.7	65 49.1	17.0	188 39.7	09.8	5 10.0	53.2			Bellatrix	279 06.8	N 6 19.6
22	51 25.3	162 30.6	31.3	80 49.8	16.3	203 41.8	09.9	20 12.6	53.2			Betelgeuse	271 36.4	N 7 24.3
23	66 27.7	177 29.7	31.8	95 50.5	15.6	218 43.8	10.1	35 15.1	53.2					
13 00	81 30.2	192 28.8	S 21 32.4	110 51.1	S 13 14.9	233 45.9	S 10 10.2	50 17.7	N 9 53.2			Canopus	264 10.2	S 52 40.5
01	96 32.6	207 28.0	32.9	125 51.8	14.3	248 47.9	10.4	65 20.3	53.1			Capella	281 22.5	N 45 58.3
02	111 35.1	222 27.1	33.5	140 52.5	13.6	263 50.0	10.5	80 22.8	53.1			Deneb	49 54.3	N 45 10.4
03	126 37.6	237 26.2	34.0	155 53.2	12.9	278 52.1	10.6	95 25.4	53.1			Denebola	183 07.0	N 14 44.3
04	141 40.0	252 25.4	34.5	170 53.9	12.2	293 54.1	10.8	110 28.0	53.1			Diphda	349 28.5	S 18 09.1
05	156 42.5	267 24.5	35.1	185 54.6	11.5	308 56.2	10.9	125 30.5	53.0					
06	171 45.0	282 23.6	S 21 35.6	200 55.3	S 13 10.8	323 58.2	S 10 11.1	140 33.1	N 9 53.0			Dubhe	194 31.3	N 61 54.5
07	186 47.4	297 22.7	36.1	215 56.0	10.1	339 00.3	11.2	155 35.6	53.0			Elnath	278 53.7	N 28 35.2
S 08	201 49.9	312 21.9	36.7	230 56.6	09.4	354 02.3	11.4	170 38.2	53.0			Eltanin	91 01.9	N 51 29.4
A 09	216 52.4	327 21.0	37.2	245 57.3	08.7	9 04.4	11.5	185 40.8	52.9			Enif	34 19.5	N 9 44.2
T 10	231 54.8	342 20.1	37.8	260 58.0	08.0	24 06.5	11.7	200 43.3	52.9			Fomalhaut	16 00.0	S 29 47.1
U 11	246 57.3	357 19.3	38.3	275 58.7	07.3	39 08.5	11.8	215 45.9	52.9					
R 12	261 59.8	12 18.4	S 21 38.8	290 59.4	S 13 06.6	54 10.6	S 10 12.0	230 48.4	N 9 52.9			Gacrux	172 38.0	S 56 56.4
D 13	277 02.2	27 17.5	39.3	306 00.1	05.9	69 12.6	12.1	245 51.0	52.9			Gienah	176 26.2	S 17 22.4
A 14	292 04.7	42 16.6	39.9	321 00.8	05.2	84 14.7	12.2	260 53.6	52.8			Hadar	149 35.3	S 60 13.6
Y 15	307 07.1	57 15.8	40.4	336 01.5	04.5	99 16.7	12.4	275 56.1	52.8			Hamal	328 37.6	N 23 19.5
16	322 09.6	72 14.9	40.9	351 02.2	03.9	114 18.8	12.5	290 58.7	52.8			Kaus Aust.	84 27.7	S 34 24.2
17	337 12.1	87 14.0	41.5	6 02.8	03.2	129 20.9	12.7	306 01.2	52.8					
18	352 14.5	102 13.1	S 21 42.0	21 03.5	S 13 02.5	144 22.9	S 10 12.8	321 03.8	N 9 52.7			Kochab	137 19.0	N 74 16.4
19	7 17.0	117 12.3	42.5	36 04.2	01.8	159 25.0	13.0	336 06.3	52.7			Markab	14 11.1	N 15 02.7
20	22 19.5	132 11.4	43.0	51 04.9	01.1	174 27.0	13.1	351 08.9	52.7			Menkar	314 49.1	N 3 58.5
21	37 21.9	147 10.5	43.6	66 05.6	13 00.4	189 29.1	13.3	6 11.5	52.7			Menkent	148 46.7	S 36 13.3
22	52 24.4	162 09.6	44.1	81 06.3	12 59.7	204 31.1	13.4	21 14.0	52.7			Miaplacidus	221 46.6	S 69 35.2
23	67 26.9	177 08.8	44.6	96 07.0	59.0	219 33.2	13.5	36 16.6	52.6					
14 00	82 29.3	192 07.9	S 21 45.1	111 07.7	S 12 58.3	234 35.3	S 10 13.7	51 19.1	N 9 52.6			Mirfak	309 27.1	N 49 45.6
01	97 31.8	207 07.0	45.6	126 08.4	57.6	249 37.3	13.8	66 21.7	52.6			Nunki	76 39.3	S 26 20.3
02	112 34.3	222 06.1	46.1	141 09.1	56.9	264 39.4	14.0	81 24.3	52.6			Peacock	54 11.0	S 56 50.3
03	127 36.7	237 05.3	46.7	156 09.7	56.2	279 41.4	14.1	96 26.8	52.6			Pollux	244 07.4	N 28 06.0
04	142 39.2	252 04.4	47.2	171 10.4	55.5	294 43.5	14.3	111 29.4	52.5			Procyon	245 33.7	N 5 18.3
05	157 41.6	267 03.5	47.7	186 11.1	54.8	309 45.6	14.4	126 31.9	52.5					
06	172 44.1	282 02.6	S 21 48.2	201 11.8	S 12 54.1	324 47.6	S 10 14.5	141 34.5	N 9 52.5			Rasalhague	96 37.2	N 12 34.7
07	187 46.6	297 01.7	48.7	216 12.5	53.4	339 49.7	14.7	156 37.0	52.5			Regulus	208 18.2	N 12 06.9
08	202 49.0	312 00.9	49.2	231 13.2	52.7	354 51.7	14.8	171 39.6	52.4			Rigel	281 43.2	S 8 14.0
S 09	217 51.5	327 00.0	49.7	246 13.9	52.0	9 53.8	15.0	186 42.1	52.4			Rigel Kent.	140 37.3	S 60 42.5
U 10	232 54.0	341 59.1	50.2	261 14.6	51.3	24 55.9	15.1	201 44.7	52.4			Sabik	102 50.5	S 15 41.5
N 11	247 56.4	356 58.2	50.7	276 15.3	50.6	39 57.9	15.3	216 47.3	52.4					
D 12	262 58.9	11 57.3	S 21 51.2	291 16.0	S 12 49.9	55 00.0	S 10 15.4	231 49.8	N 9 52.4			Schedar	350 18.1	N 56 22.7
A 13	278 01.4	26 56.4	51.7	306 16.7	49.2	70 02.0	15.6	246 52.4	52.3			Shaula	97 06.9	S 37 05.1
Y 14	293 03.8	41 55.6	52.3	321 17.3	48.5	85 04.1	15.7	261 54.9	52.3			Sirius	259 02.3	S 16 40.3
15	308 06.3	56 54.7	52.8	336 18.0	47.8	100 06.2	15.8	276 57.5	52.3			Spica	159 06.0	S 11 00.3
16	323 08.8	71 53.8	53.3	351 18.7	47.1	115 08.2	16.0	292 00.0	52.3			Suhail	223 16.5	S 43 18.3
17	338 11.2	86 52.9	53.8	6 19.4	46.4	130 10.3	16.1	307 02.6	52.3					
18	353 13.7	101 52.0	S 21 54.3	21 20.1	S 12 45.7	145 12.3	S 10 16.3	322 05.1	N 9 52.2			Vega	81 01.6	N 38 45.2
19	8 16.1	116 51.1	54.7	36 20.8	45.0	160 14.4	16.4	337 07.7	52.2			Zuben'ubi	137 42.1	S 15 55.1
20	23 18.6	131 50.3	55.2	51 21.5	44.3	175 16.5	16.6	352 10.2	52.2				S.H.A.	Mer. Pass.
21	38 21.1	146 49.4	55.7	66 22.2	43.6	190 18.5	16.7	7 12.8	52.2			Venus	110 58.6	11 11
22	53 23.5	161 48.5	56.2	81 22.9	42.9	205 20.6	16.8	22 15.4	52.2			Mars	29 20.9	16 36
23	68 26.0	176 47.6	56.7	96 23.6	42.2	220 22.7	17.0	37 17.9	52.1			Jupiter	152 15.7	8 24
												Saturn	328 47.5	20 35
Mer. Pass.	18 30.9	v -0.9	d 0.5	v 0.7	d 0.7	v 2.1	d 0.1	v 2.6	d 0.0					

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise								
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	12	13	14	15				
d	h	°	'	°	'	°	'	°	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>				
1200	181	37.2	S 23	03.2	141	43.6	3.8	S 24	43.5	9.3	60.6	N 72	08 17	10 40	■	■	14 50	13 25	12 41	
	196	36.9	03.4	156	06.4	4.0	24	34.2	9.4	60.6	N 70	07 58	09 44	■	■	13 58	13 07	12 34		
	211	36.6	03.6	170	29.4	4.1	24	24.8	9.6	60.6	68	07 42	09 10	■	■	13 25	12 52	12 28		
	226	36.3	03.7	184	52.5	4.2	24	15.2	9.8	60.6	66	07 29	08 46	10 23	13 42	13 01	12 40	12 23		
	241	36.0	03.9	199	15.7	4.3	24	05.4	9.9	60.6	64	07 19	08 26	09 43	13 00	12 42	12 29	12 19		
	256	35.7	04.1	213	39.0	4.4	23	55.5	10.1	60.6	62	07 09	08 11	09 16	12 32	12 26	12 20	12 16		
06	271	35.4	S 23	04.3	228	02.4	4.6	S 23	45.4	10.2	60.6	60	07 01	07 57	08 54	12 10	12 12	12 13	12 12	
07	286	35.1	04.5	242	26.0	4.6	23	35.2	10.4	60.6	N 58	06 54	07 46	08 38	11 52	12 01	12 06	12 09		
08	301	34.8	04.7	256	49.6	4.8	23	24.8	10.6	60.5	56	06 47	07 36	08 23	11 37	11 51	12 00	12 07		
F 09	316	34.5	04.9	271	13.4	5.0	23	14.2	10.7	60.5	54	06 41	07 27	08 11	11 24	11 42	11 55	12 04		
R 10	331	34.2	05.1	285	37.4	5.0	23	03.5	10.9	60.5	52	06 35	07 19	08 00	11 12	11 34	11 50	12 02		
I 11	346	33.9	05.3	300	01.4	5.2	22	52.6	11.0	60.5	50	06 30	07 12	07 50	11 02	11 27	11 45	12 00		
D 12	1	33.7	S 23	05.4	314	25.6	5.3	S 22	41.6	11.1	60.5	45	06 19	06 56	07 30	10 40	11 11	11 36	11 56	
A 13	16	33.4	05.6	328	49.9	5.4	22	30.5	11.3	60.5	N 40	06 09	06 43	07 13	10 23	10 59	11 28	11 53		
Y 14	31	33.1	05.8	343	14.3	5.6	22	19.2	11.5	60.4	35	05 59	06 31	06 59	10 08	10 48	11 21	11 49		
15	46	32.8	06.0	357	38.9	5.6	22	07.7	11.5	60.4	30	05 51	06 21	06 47	09 55	10 38	11 14	11 47		
16	61	32.5	06.2	12	03.5	5.8	21	56.2	11.7	60.4	20	05 35	06 02	06 26	09 33	10 21	11 04	11 42		
17	76	32.2	06.4	26	28.3	6.0	21	44.5	11.9	60.4	N 10	05 19	05 45	06 07	09 14	10 07	10 54	11 38		
18	91	31.9	S 23	06.5	40	53.3	6.0	S 21	32.6	12.0	60.4	0	05 02	05 28	05 50	08 56	09 53	10 45	11 34	
19	106	31.6	06.7	55	18.3	6.2	21	20.6	12.1	60.4	S 10	04 43	05 10	05 33	08 38	09 39	10 36	11 30		
20	121	31.3	06.9	69	43.5	6.4	21	08.5	12.2	60.3	20	04 21	04 50	05 14	08 18	09 25	10 27	11 25		
21	136	31.0	07.1	84	08.9	6.4	20	56.3	12.3	60.3	30	03 52	04 25	04 53	07 55	09 08	10 16	11 21		
22	151	30.7	07.3	98	34.3	6.6	20	44.0	12.5	60.3	35	03 34	04 10	04 40	07 42	08 58	10 10	11 18		
23	166	30.4	07.4	112	59.9	6.7	20	31.5	12.6	60.3	40	03 11	03 52	04 25	07 27	08 46	10 02	11 15		
1300	181	30.1	S 23	07.6	127	25.6	6.8	S 20	18.9	12.7	60.3	45	02 41	03 30	04 07	07 08	08 33	09 54	11 11	
	196	29.8	07.8	141	51.4	7.0	20	06.2	12.9	60.2	S 50	01 56	03 01	03 45	06 45	08 16	09 43	11 07		
	211	29.5	08.0	156	17.4	7.0	19	53.3	12.9	60.2	52	01 30	02 46	03 34	06 34	08 08	09 39	11 04		
	226	29.2	08.1	170	43.4	7.3	19	40.4	13.1	60.2	54	00 48	02 29	03 22	06 22	07 59	09 33	11 02		
	241	28.9	08.3	185	09.7	7.3	19	27.3	13.2	60.2	56	00 00	02 07	03 08	06 07	07 50	09 27	11 00		
	256	28.7	08.5	199	36.0	7.4	19	14.1	13.2	60.2	58	00 00	01 38	02 52	05 50	07 38	09 21	10 57		
06	271	28.4	S 23	08.7	214	02.4	7.6	S 19	00.9	13.4	60.1	S 60	00 00	00 53	02 32	05 29	07 25	09 13	10 54	
07	286	28.1	08.8	228	29.0	7.7	18	47.5	13.5	60.1		Lat.	Sun-set	Twilight		Moonset				
08	301	27.8	09.0	242	55.7	7.9	18	34.0	13.6	60.1				Civil	Naut.	12	13	14	15	
S 09	316	27.5	09.2	257	22.6	7.9	18	20.4	13.7	60.1		°	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>
T 10	331	27.2	09.3	271	49.5	8.1	18	06.7	13.8	60.1	N 72	00 00	00 00	00 00	00 00	00 00	00 00	00 00	00 00	
U 11	346	26.9	09.5	286	16.6	8.2	17	52.9	13.9	60.0	70	00 00	00 00	00 00	00 00	00 00	00 00	00 00	00 00	
D 12	1	26.6	S 23	09.7	300	43.8	8.3	S 17	39.0	13.9	60.0	N 70	00 00	00 00	00 00	00 00	00 00	00 00	00 00	
A 13	16	26.3	09.8	315	11.1	8.5	17	25.1	14.1	60.0	68	00 00	00 00	00 00	00 00	00 00	00 00	00 00	00 00	
Y 14	31	26.0	10.0	329	38.6	8.5	17	11.0	14.1	60.0	66	13 26	15 03	16 19	16 55	19 33	21 40	23 34	23 40	
15	46	25.7	10.2	344	06.1	8.7	16	56.9	14.3	59.9	64	14 05	15 22	16 30	17 35	19 50	21 48	23 36	23 40	
16	61	25.4	10.3	358	33.8	8.8	16	42.6	14.3	59.9	62	14 33	15 37	16 39	17 39	18 03	20 05	21 55	23 38	
17	76	25.1	10.5	13	01.6	8.9	16	28.3	14.4	59.9	60	14 54	15 51	16 47	17 42	18 24	20 17	22 02	23 40	
18	91	24.8	S 23	10.7	27	29.5	9.0	S 16	13.9	14.5	59.9	N 58	15 11	16 02	16 54	18 41	20 27	22 07	23 41	
19	106	24.5	10.8	41	57.5	9.2	15	59.4	14.6	59.8	56	15 25	16 12	17 01	18 55	20 36	22 12	23 42	23 42	
20	121	24.2	11.0	56	25.7	9.2	15	44.8	14.6	59.8	54	15 38	16 21	17 07	19 08	20 44	22 16	23 43	23 43	
21	136	23.9	11.1	70	53.9	9.4	15	30.2	14.7	59.8	52	15 48	16 29	17 13	19 19	20 52	22 20	23 44	23 44	
22	151	23.6	11.3	85	22.3	9.5	15	15.5	14.8	59.8	50	15 58	16 37	17 18	19 28	20 58	22 23	23 45	23 45	
23	166	23.3	11.4	99	50.8	9.5	15	00.7	14.9	59.7	45	16 19	16 52	17 29	19 48	21 12	22 31	23 47	23 47	
1400	181	23.0	S 23	11.6	114	19.3	9.7	S 14	45.8	14.9	59.7	N 40	16 35	17 06	17 40	20 05	21 23	22 37	23 48	
	196	22.7	11.8	128	48.0	9.8	14	30.9	15.0	59.7	35	16 49	17 17	17 49	20 18	21 32	22 43	23 49	23 49	
	211	22.4	11.9	143	16.8	9.9	14	15.9	15.0	59.7	30	17 01	17 28	17 58	20 30	21 41	22 47	23 51	23 51	
	226	22.1	12.1	157	45.7	10.1	14	00.9	15.1	59.6	20	17 22	17 47	18 14	20 50	21 55	22 55	23 52	23 52	
	241	21.8	12.2	172	14.8	10.1	13	45.8	15.2	59.6	N 10	17 41	18 03	18 30	21 08	22 07	23 02	23 54	23 54	
	256	21.5	12.4	186	43.9	10.2	13	30.6	15.3	59.6	0	17 58	18 20	18 47	21 24	22 19	23 09	23 56	23 56	
06	271	21.2	S 23	12.5	201	13.1	10.3	S 13	15.3	15.3	59.5	S 10	18 15	18 38	19 05	21 40	22 30	23 15	23 57	
07	286	20.9	12.7	215	42.4	10.4	13	00.0	15.3	59.5	20	18 34	18 59	19 28	21 57	22 42	23 22	23 59	23 59	
08	301	20.6	12.8	230	11.8	10.6	12	44.7	15.4	59.5	30	18 56	19 23	19 56	22 16	22 55	23 30	24 01	24 01	
S 09	316	20.3	13.0	244	41.4	10.6	12	29.3	15.5	59.5	35	19 09	19 38	20 15	22 27	23 03	23 34	24 02	24 02	
U 10	331	20.0	13.1	259	11.0	10.7	12	13.8	15.5	59.4	40	19 24	19 56	20 38	22 40	23 12	23 39	24 03	24 03	
N 11	346	19.7	13.3	273	40.7	10.8	11	58.3	15.5	59.4	45	19 41	20 19	21 08	22 55	23 22	23 44	24 04	24 04	

	ARIES	VENUS	-3.4	MARS	+0.9	JUPITER	-1.4	SATURN	+0.3	STARS			
G.M.T.	G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.	
d h	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "		° ' "	° ' "	
15 MON DAY	00	83 28.5	191 46.7 S 21	57.2	111 24.3 S 12	41.5	235 24.7 S 10	17.1	52 20.5 N 9	52.1	Acamar	315 42.7 S	40 25.5
	01	98 30.9	206 45.8	57.7	126 25.0	40.8	250 26.8	17.3	67 23.0	52.1	Achernar	335 50.5 S	57 23.5
	02	113 33.4	221 44.9	58.2	141 25.7	40.1	265 28.8	17.4	82 25.6	52.1	Acrux	173 46.6 S	62 55.7
	03	128 35.9	236 44.1	58.7	156 26.4	39.4	280 30.9	17.5	97 28.1	52.1	Adhara	255 37.9 S	28 55.6
	04	143 38.3	251 43.2	59.2	171 27.1	38.7	295 33.0	17.7	112 30.7	52.0	Aldebaran	291 26.7 N	16 27.2
	05	158 40.8	266 42.3	21 59.7	186 27.7	38.0	310 35.0	17.8	127 33.2	52.0			
	06	173 43.3	281 41.4 S 22	00.1	201 28.4 S 12	37.3	325 37.1 S 10	18.0	142 35.8 N 9	52.0	Alioth	166 49.3 N	56 07.1
	07	188 45.7	296 40.5	00.6	216 29.1	36.6	340 39.2	18.1	157 38.3	52.0	Alkaid	153 24.7 N	49 27.5
	08	203 48.2	311 39.6	01.1	231 29.8	35.9	355 41.2	18.3	172 40.9	52.0	Al Na'ir	28 24.8 S	47 06.7
	09	218 50.6	326 38.7	01.6	246 30.5	35.2	10 43.3	18.4	187 43.4	51.9	Anilam	276 19.3 S	1 13.0
	10	233 53.1	341 37.8	02.1	261 31.2	34.5	25 45.4	18.5	202 46.0	51.9	Alphard	218 28.1 S	8 31.5
	11	248 55.6	356 36.9	02.5	276 31.9	33.8	40 47.4	18.7	217 48.5	51.9			
	12	263 58.0	11 36.0 S 22	03.0	291 32.6 S 12	33.1	55 49.5 S 10	18.8	232 51.1 N 9	51.9	Alphecca	126 39.0 N	26 48.7
	13	279 00.5	26 35.2	03.5	306 33.3	32.4	70 51.6	19.0	247 53.6	51.9	Alpheratz	358 17.5 S	28 55.7
	14	294 03.0	41 34.3	04.0	321 34.0	31.7	85 53.6	19.1	262 56.2	51.8	Altair	62 40.5 N	8 47.2
	15	309 05.4	56 33.4	04.5	336 34.7	31.0	100 55.7	19.2	277 58.7	51.8	Ankaa	353 47.7 S	42 28.3
	16	324 07.9	71 32.5	04.9	351 35.4	30.3	115 57.7	19.4	293 01.3	51.8	Antares	113 06.9 S	26 22.1
	17	339 10.4	86 31.6	05.4	6 36.1	29.6	130 59.8	19.5	308 03.8	51.8			
	18	354 12.8	101 30.7 S 22	05.9	21 36.8 S 12	28.9	146 01.9 S 10	19.7	323 06.4 N 9	51.8	Arcturus	146 25.8 N	19 20.1
	19	9 15.3	116 29.8	06.3	36 37.5	28.2	161 03.9	19.8	338 08.9	51.7	Atria	108 38.9 S	68 58.5
	20	24 17.8	131 28.9	06.8	51 38.2	27.5	176 06.0	20.0	353 11.5	51.7	Avior	234 31.1 S	59 24.4
	21	39 20.2	146 28.0	07.3	66 38.9	26.8	191 08.1	20.1	8 14.0	51.7	Bellatrix	279 06.8 N	6 19.6
	22	54 22.7	161 27.1	07.7	81 39.6	26.1	206 10.1	20.2	23 16.6	51.7	Betelgeuse	271 36.4 N	7 24.3
	23	69 25.1	176 26.2	08.2	96 40.3	25.4	221 12.2	20.4	38 19.1	51.7			
16 TUES DAY	00	84 27.6	191 25.3 S 22	08.7	111 41.0 S 12	24.7	236 14.3 S 10	20.5	53 21.7 N 9	51.6	Canopus	264 10.2 S	52 40.5
	01	99 30.1	206 24.4	09.1	126 41.6	24.0	251 16.3	20.7	68 24.2	51.6	Capella	281 22.5 N	45 58.3
	02	114 32.5	221 23.5	09.6	141 42.3	23.2	266 18.4	20.8	83 26.8	51.6	Deneb	49 54.3 N	45 10.4
	03	129 35.0	236 22.6	10.1	156 43.0	22.5	281 20.5	20.9	98 29.3	51.6	Denebola	183 07.0 N	14 44.3
	04	144 37.5	251 21.7	10.5	171 43.7	21.8	296 22.5	21.1	113 31.9	51.6	Diphda	349 28.6 S	18 09.1
	05	159 39.9	266 20.8	11.0	186 44.4	21.1	311 24.6	21.2	128 34.4	51.6			
	06	174 42.4	281 19.9 S 22	11.4	201 45.1 S 12	20.4	326 26.7 S 10	21.4	143 37.0 N 9	51.5	Dubhe	194 31.3 N	61 54.5
	07	189 44.9	296 19.0	11.9	216 45.8	19.7	341 28.7	21.5	158 39.5	51.5	El Nath	278 53.7 N	28 35.2
	08	204 47.3	311 18.2	12.3	231 46.5	19.0	356 30.8	21.6	173 42.1	51.5	Eltanin	91 01.9 N	51 29.4
	09	219 49.8	326 17.3	12.8	246 47.2	18.3	11 32.9	21.8	188 44.6	51.5	Enif	34 19.5 N	9 44.2
	10	234 52.2	341 16.4	13.2	261 47.9	17.6	26 34.9	21.9	203 47.2	51.5	Fomalhaut	16 00.0 S	29 47.1
	11	249 54.7	356 15.5	13.7	276 48.6	16.9	41 37.0	22.1	218 49.7	51.4			
	12	264 57.2	11 14.6 S 22	14.2	291 49.3 S 12	16.2	56 39.1 S 10	22.2	233 52.3 N 9	51.4	Gacrux	172 38.0 S	56 56.4
	13	279 59.6	26 13.7	14.6	306 50.0	15.5	71 41.1	22.3	248 54.8	51.4	Gienah	176 26.2 S	17 22.4
	14	295 02.1	41 12.8	15.0	321 50.7	14.8	86 43.2	22.5	263 57.4	51.4	Hadar	149 35.2 S	6 13.6
	15	310 04.6	56 11.9	15.5	336 51.4	14.1	101 45.3	22.6	278 59.9	51.4	Hamal	328 37.6 N	23 19.5
	16	325 07.0	71 11.0	15.9	351 52.1	13.4	116 47.3	22.8	294 02.5	51.4	Kaus Aust.	84 27.6 S	34 24.2
	17	340 09.5	86 10.0	16.4	6 52.8	12.6	131 49.4	22.9	309 05.0	51.3			
	18	355 12.0	101 09.1 S 22	16.8	21 53.5 S 12	11.9	146 51.5 S 10	23.0	324 07.6 N 9	51.3	Kochab	137 19.0 N	74 16.4
	19	10 14.4	116 08.2	17.3	36 54.2	11.2	161 53.6	23.2	339 10.1	51.3	Markab	14 11.1 N	15 02.7
	20	25 16.9	131 07.3	17.7	51 54.9	10.5	176 55.6	23.3	354 12.7	51.3	Menkar	314 49.1 N	3 58.5
	21	40 19.3	146 06.4	18.2	66 55.6	09.8	191 57.7	23.4	9 15.2	51.3	Menkent	148 46.7 S	36 13.3
	22	55 21.8	161 05.5	18.6	81 56.3	09.1	206 59.8	23.6	24 17.7	51.3	Miaplacidus	221 46.5 S	69 35.2
	23	70 24.3	176 04.6	19.0	96 57.0	08.4	222 01.8	23.7	39 20.3	51.2			
17 WED NES DAY	00	85 26.7	191 03.7 S 22	19.5	111 57.7 S 12	07.7	237 03.9 S 10	23.9	54 22.8 N 9	51.2	Mirfak	309 27.1 N	49 45.6
	01	100 29.2	206 02.8	19.9	126 58.4	07.0	252 06.0	24.0	69 25.4	51.2	Nunki	76 39.2 S	26 20.3
	02	115 31.7	221 01.9	20.3	141 59.1	06.3	267 08.0	24.1	84 27.9	51.2	Peacock	54 11.1 S	56 50.2
	03	130 34.1	236 01.0	20.8	156 59.8	05.6	282 10.1	24.3	99 30.5	51.2	Pollux	244 07.4 N	28 06.0
	04	145 36.6	251 00.1	21.2	172 00.5	04.8	297 12.2	24.4	114 33.0	51.2	Procyon	245 33.7 N	5 18.3
	05	160 39.1	265 59.2	21.6	187 01.2	04.1	312 14.3	24.6	129 35.6	51.1			
	06	175 41.5	280 58.3 S 22	22.1	202 01.9 S 12	03.4	327 16.3 S 10	24.7	144 38.1 N 9	51.1	Rasalhague	96 37.2 N	12 34.7
	07	190 44.0	295 57.4	22.5	217 02.6	02.7	342 18.4	24.8	159 40.6	51.1	Regulus	208 18.2 N	12 06.9
	08	205 46.5	310 56.5	22.9	232 03.3	02.0	357 20.5	25.0	174 43.2	51.1	Rigel	281 43.2 S	8 14.0
	09	220 48.9	325 55.6	23.3	247 04.0	01.3	12 22.5	25.1	189 45.7	51.1	Rigel Kent.	140 37.2 S	60 42.5
	10	235 51.4	340 54.7	23.8	262 04.7	12 00.6	27 24.6	25.2	204 48.3	51.1	Sabik	102 50.5 S	15 41.5
	11	250 53.8	355 53.8	24.2	277 05.4	11 59.9	42 26.7	25.4	219 50.8	51.0			
	12	265 56.3	10 52.8 S 22	24.6	292 06.1 S 11	59.2	57 28.8 S 10	25.5	234 53.4 N 9	51.0	Schedar	350 18.1 N	56 22.7
	13	280 58.8	25 51.9	25.0	307 06.8	58.5	72 30.8	25.7	249 55.9	51.0	Shaula	97 06.9 S	37 05.1
	14	296 01.2	40 51.0	25.5	322 07.5	57.7	87 32.9	25.8	264 58.5	51.0	Sirius	259 02.3 S	16 40.3
	15	311 03.7	55 50.1	25.9	337 08.2	57.0	102 35.0	25.9	280 01.0	51.0	Spica	159 06.0 S	11 00.3
	16	326 06.2	70 49.2	26.3	352 08.9	56.3	117 37.0	26.1	295 03.5	51.0	Suhail	223 16.4 S	43 18.4
	17	341 08.6	85 48.3	26.7	7 09.6	55.6	132 39.1	26.2	310 06.1	50.9			
	18	356 11.1	100 47.4 S 22	27.1	22 10.3 S 11	54.9	147 41.2 S 10	26.3	325 08.6 N 9	50.9	Vega	81 01.6 N	38 45.2
	19	11 13.6	115 46.5	27.5	37 11.0	54.2	162 43.3	26.5	340 11.2	50.9	Zuben'ubi	137 42.0 S	15 55.1
	20	26 16.0	130 45.6	28.0	52 11.7	53.5	177 45.3	26.6	355 13.7	50.9		S.H.A.	Mer. Pass.
	21	41 18.5	145 44.7	28.4	67 12.4	52.8	192 47.4	26.8	10 16.2	50.9	Venus	106 57.7	11 15
	22	56 20.9	160 43.7	28.8	82 13.1	52.0	207 49.5	26.9	25 18.8	50.9	Mars	27 13.4	16 32
	23	71 23.4	175 42.8	29.2	97 13.8	51.3	222 51.6	27.0	40 21.3	50.8	Jupiter	151 46.7	8 14
										Saturn	328 54.1	20 23	
Mer. Pass.	18 19:2	v -0.9	d 0.4	v -0.7	d 0.7	v -2.1	d 0.1	v -2.5	d 0.0				

G.M.T.	SUN				MOON				Lat.	Twilight		Sun-rise	Moonrise			
										Naut.	Civil		15	16	17	18
	G.M.A.	Dec.	G.M.A.	Dec.	d	H.P.	h	m								
1500	181 15-8	12-3	102 15-1	12-3	8 33-6	59-9	N 72	08 21	10 49	12 41	12 06	11 30	10 45			
	196 15-5	12-3	116 46-0	12-1	8 17-0	59-9	N 70	08 01	09 49	12 34	12 07	11 40	11 07			
	211 15-2	12-4	131 17-0	12-1	8 01-5	59-9	68	07 46	09 24	12 28	12 08	11 48	11 25			
	226 14-9	12-5	143 48-0	12-2	7 44-9	59-9	66	07 33	08 49	12 23	12 09	11 55	11 39			
	241 14-6	12-7	166 19-2	12-2	7 28-6	59-9	64	07 22	08 30	12 19	12 10	12 01	11 51			
MONDAY	256 14-3	12-8	174 50-4	12-3	7 12-7	59-9	62	07 12	08 24	12 16	12 11	12 06	12 01			
	271 14-0	12-9	189 21-7	12-3	6 56-5	59-9	60	07 04	08 30	12 12	12 11	12 11	12 10			
	286 13-7	12-1	203 53-0	12-4	6 40-4	59-9	N 58	06 56	07 49	12 09	12 12	12 15	12 18			
	301 13-4	12-2	218 24-4	12-5	6 24-2	59-9	56	06 50	07 39	12 07	12 13	12 18	12 25			
	316 13-1	12-3	232 55-9	12-5	6 08-0	59-9	54	06 44	07 30	12 04	12 13	12 21	12 31			
TUESDAY	331 12-8	12-5	247 27-4	12-6	5 51-8	59-9	52	06 38	07 22	12 02	12 13	12 24	12 36			
	346 12-5	12-6	261 59-0	12-7	5 35-6	59-7	50	06 33	07 14	12 00	12 14	12 27	12 42			
	361 12-2	12-7	276 30-7	12-7	5 19-4	59-7	45	06 21	06 58	11 56	12 15	12 33	12 52			
	376 11-9	12-8	291 02-4	12-8	5 03-2	59-7	N 40	06 11	06 45	11 53	12 15	12 38	13 02			
	391 11-6	12-9	306 34-2	12-8	4 47-0	59-6	35	06 01	06 33	11 49	12 16	12 42	13 09			
WEDNESDAY	406 11-3	12-1	321 06-0	12-9	4 30-7	59-6	30	05 53	06 22	11 47	12 17	12 46	13 16			
	421 11-0	12-2	336 37-9	12-9	4 14-5	59-6	N 10	05 20	05 46	11 42	12 18	12 53	13 29			
	436 10-7	12-3	349 09-8	12-1	3 58-2	59-5	0	05 03	05 29	11 34	12 19	13 04	13 49			
	451 10-4	12-3	364 18-1	12-3	3 42-0	59-5	S 10	04 44	05 11	11 30	12 20	13 10	14 00			
	466 10-1	12-4	379 27-4	12-4	3 25-7	59-5	20	04 22	04 51	11 25	12 21	13 16	14 11			
THURSDAY	481 9-8	12-5	394 36-7	12-5	3 09-5	59-5	30	03 53	04 26	11 21	12 23	13 23	14 23			
	496 9-5	12-6	409 46-0	12-6	2 53-2	59-4	35	03 34	04 11	11 18	12 23	13 27	14 31			
	511 9-2	12-7	424 55-3	12-7	2 37-0	59-4	40	03 11	03 53	11 15	12 24	13 32	14 39			
	526 8-9	12-8	439 64-6	12-8	2 20-8	59-4	45	02 41	03 30	11 11	12 25	13 37	14 49			
	541 8-6	12-9	454 73-9	12-9	2 04-6	59-4	S 50	01 56	03 01	11 07	12 26	13 44	15 01			
FRIDAY	196 08-3	12-3	105 27-0	12-3	1 48-3	59-3	52	01 28	02 46	11 04	12 27	13 47	15 06			
	211 08-0	12-4	119 59-3	12-4	1 32-1	59-3	54	00 44	02 28	11 02	12 27	13 50	15 13			
	226 07-7	12-5	134 31-7	12-4	1 15-9	59-2	56	00 00	02 06	11 00	12 28	13 54	15 20			
	241 07-4	12-6	149 04-1	12-5	0 59-7	59-2	58	00 00	01 37	10 57	12 28	13 58	15 27			
	256 07-1	12-7	163 36-6	12-5	0 43-5	59-2	S 60	00 00	00 48	10 54	12 29	14 03	15 36			
SATURDAY	271 06-8	12-8	178 09-1	12-5	0 27-3	59-2										
	286 06-5	12-9	192 41-6	12-6	0 11-2	59-1										
	301 06-2	12-1	207 14-2	12-5	0 05-0	59-1										
	316 05-9	12-2	221 46-7	12-6	0 21-1	59-1										
	331 05-6	12-3	236 19-3	12-7	0 37-2	59-0										
SUNDAY	346 05-3	12-4	250 52-0	12-6	0 53-3	59-0										
	361 05-0	12-5	265 24-6	12-7	1 09-4	59-0	N 72	13 02	15 30	23 26	25 41	01 41	04 02			
	376 04-7	12-6	279 57-3	12-7	1 25-4	59-0	N 70	14 02	15 50	23 29	25 34	01 34	03 42			
	391 04-4	12-7	294 30-0	12-8	1 41-5	59-9	68	14 37	16 05	23 32	25 29	01 29	03 26			
	406 04-1	12-8	294 30-0	12-8	1 41-5	59-9	66	13 22	15 02	23 34	25 24	01 24	03 14			
MONDAY	421 03-8	12-9	309 02-8	12-7	1 57-5	59-9	64	14 04	15 21	23 36	25 20	01 20	03 03			
	436 03-5	12-1	323 35-5	12-8	2 13-5	59-9	62	14 32	15 37	23 38	25 17	01 17	02 55			
	451 03-2	12-2	338 08-3	12-8	2 29-4	59-8	60	14 53	15 51	23 40	25 14	01 14	02 47			
	466 02-9	12-3	352 41-1	12-8	2 45-3	59-8	N 58	15 10	16 02	23 41	25 11	01 11	02 40			
	481 02-6	12-4	367 13-9	12-8	3 01-2	59-8	56	15 25	16 12	23 42	25 09	01 09	02 35			
TUESDAY	496 02-3	12-5	382 46-7	12-9	3 17-1	59-7	54	15 38	16 21	23 43	25 07	01 07	02 29			
	511 02-0	12-6	397 19-5	12-8	3 32-9	59-7	52	15 49	16 30	23 44	25 05	01 05	02 25			
	526 01-7	12-7	412 52-3	12-9	3 48-8	59-7	50	15 59	16 37	23 45	25 03	01 03	02 21			
	541 01-4	12-8	428 25-2	12-8	4 04-5	59-7	45	16 19	16 53	23 47	25 00	01 00	02 12			
	556 01-1	12-9	443 58-0	12-9	4 20-3	59-6	N 40	16 36	17 07	23 48	24 57	00 57	02 04			
WEDNESDAY	196 01-0	12-4	94 31-9	12-9	4 36-0	59-6	35	16 50	17 18	23 50	24 54	00 54	01 58			
	211 00-7	12-5	109 04-8	12-9	4 51-7	59-6	30	17 02	17 29	23 51	24 52	00 52	01 52			
	226 00-4	12-6	123 36-7	12-8	5 07-3	59-5	20	17 24	17 48	23 52	24 48	00 48	01 42			
	241 00-1	12-7	138 09-5	12-9	5 22-9	59-5	N 10	17 42	18 05	23 54	24 44	00 44	01 34			
	256 00-8	12-8	152 42-4	12-9	5 38-5	59-5	0	17 59	18 22	23 56	24 41	00 41	01 26			
THURSDAY	271 00-5	12-9	167 15-3	12-9	5 54-0	59-5	S 10	18 17	18 40	23 57	24 38	00 38	01 18			
	286 00-2	12-1	181 48-2	12-9	6 09-5	59-4	20	18 36	19 00	23 59	24 34	00 34	01 09			
	301 00-9	12-2	196 21-1	12-8	6 24-9	59-4	30	18 58	19 25	24 01	00 01	00 30	01 00			
	316 00-6	12-3	210 53-9	12-9	6 40-3	59-4	35	19 11	19 40	24 02	00 02	00 28	00 54			
	331 00-3	12-4	225 26-8	12-9	6 55-7	59-4	40	19 26	19 59	24 03	00 03	00 25	00 48			
FRIDAY	346 00-0	12-5	239 59-7	12-9	7 11-0	59-3	45	19 44	20 21	24 04	00 04	00 22	00 41			
	361 00-7	12-6	254 32-6	12-8	7 26-2	59-3	S 50	20 06	20 51	24 05	00 05	00 19	00 32			
	376 00-4	12-7	269 05-4	12-9	7 41-4	59-3	52	20 17	21 06	24 06	00 06	00 17	00 29			
	391 00-1	12-8	283 38-3	12-8	7 56-6	59-2	54	20 29	21 24	24 07	00 07	00 15	00 24			
	406 00-8	12-9	298 11-1	12-8	8 11-7	59-2	56	20 43	21 46	24 08	00 08	00 13	00 19			
SATURDAY	421 00-5	12-1	312 43-9	12-9	8 26-8	59-2	58	21 00	22 15	24 09	00 09	00 11	00 14			
	436 00-2	12-2	327 16-8	12-8	8 41-8	59-2	S 60	21 21	23 05	24 10	00 10	00 09	00 08			
	451 00-9	12-3	341 49-6	12-7	8 56-8	59-1										
	466 00-6	12-4	356 22-3	12-8	9 11-7	59-1										
	481 00-3	12-5	371 35-0	12-8	9 26-6	59-1										
SUNDAY	496 00-0	12-6	386 07-7	12-7	9 41-4	59-1										
	511 00-7	12-7	401 20-4	12-7	9 56-1	59-0										
	526 00-4	12-8	416 33-3	12-7	10 10-8	59-0										
	541 00-1	12-9	431 46-6	12-7	10 25-9	59-0										
	556 00-8	12-1	446 59-9	12-7	10 41-0	59-0										
MONDAY	571 00-5	12-2	462 13-1	12-6	10 56-1	59-0										
	586 00-2	12-3	477 26-2	12-6	11 11-2	59-0										
	601 00-9	12-4	492 39-3	12-5	11 26-3	59-0										
	616 00-6	12-5	507 52-4	12-5	11 41-4	59-0										
	631 00-3	12-6	523 05-5	12-4	11 56-5	59-0										
TUESDAY	646 00-0	12-7	538 18-6	12-4	12 11-6	59-0										
	661 00-7	12-8	553 31-7	12-3	12 26-7	59-0										
	676 00-4	12-9	568 44-8	12-3	12 41-8	59-0										
	691 00-1	12-1	583 57-9	12-2	12 56-9	59-0										
	706 00-8	12-2	599 11-0	12-1	13 12-0	59-0										
WEDNESDAY	721 00-5	12-3	614 24-1	12-1	13 27-1	59-0										
	736 00-2	12-4	629 37-2	12-1	13 42-2	59-0										
	751 00-9	12-5	644 50-3	12-1	13 57-3	59-0										
	766 00-6	12-6	660 03-4	12-1	14 12-4	59-0										
	781 00-3	12-7	675 16-5	12-1	14 27-5	59-0										
TH																

		ARIES		VENUS -3.4		MARS +0.9		JUPITER -1.4		SATURN +0.4		STARS													
G.M.T.		G.H.A.		G.H.A.		G.H.A.		G.H.A.		G.H.A.		Name	S.H.A.	Dec.											
d h		° ' "		° ' "		° ' "		° ' "		° ' "			° ' "	° ' "											
18	00	86	25.9	190	41.9	S 22	29.6	112	14.5	S 11	50.6	237	53.6	S 10	27.2	55	23.9	N 9	50.8	Acamar	315	42.7	S	40	25.5
	01	101	28.3	205	41.0		30.0	127	15.2		49.9	252	55.7		27.3	70	26.4		50.8	Achernar	335	50.5	S	57	23.5
	02	116	30.8	220	40.1		30.4	142	15.9		49.2	267	57.8		27.5	85	29.0		50.8	Acruz	173	46.5	S	62	55.7
	03	131	33.3	235	39.2		30.8	157	16.7		48.5	282	59.9		27.6	100	31.5		50.8	Adhara	255	37.9	S	28	55.6
	04	146	35.7	250	38.3		31.2	172	17.4		47.8	298	01.9		27.7	115	34.0		50.8	Aldebaran	291	26.7	N	16	27.2
	05	161	38.2	265	37.3		31.6	187	18.1		47.1	313	04.0		27.9	130	36.6		50.7						
	06	176	40.7	280	36.4	S 22	32.0	202	18.8	S 11	46.3	328	06.1	S 10	28.0	145	39.1	N 9	50.7	Alioth	166	49.2	N	56	07.0
	07	191	43.1	295	35.5		32.4	217	19.5		45.6	343	08.1		28.1	160	41.7		50.7	Alkaid	153	24.7	N	49	27.5
	08	206	45.6	310	34.6		32.8	232	20.2		44.9	358	10.2		28.3	175	44.2		50.7	Al Na'ir	28	24.8	S	47	06.7
	09	221	48.1	325	33.7		33.2	247	20.9		44.2	13	12.3		28.4	190	46.7		50.7	Anilam	276	19.3	S	1	13.0
	10	236	50.5	340	32.8		33.6	262	21.6		43.5	28	14.4		28.5	205	49.3		50.7	Alphard	218	28.1	S	8	31.5
	11	251	53.0	355	31.9		34.0	277	22.3		42.8	43	16.4		28.7	220	51.8		50.7						
	12	266	55.4	10	30.9	S 22	34.4	292	23.0	S 11	42.1	58	18.5	S 10	28.8	235	54.4	N 9	50.6	Alphecca	126	39.0	N	26	48.7
	13	281	57.9	25	30.0		34.8	307	23.7		41.3	73	20.6		29.0	250	56.9		50.6	Alpheratz	358	17.5	N	28	55.7
	14	297	00.4	40	29.1		35.2	322	24.4		40.6	88	22.7		29.1	265	59.4		50.6	Altair	62	40.5	N	8	47.2
	15	312	02.8	55	28.2		35.6	337	25.1		39.9	103	24.8		29.2	281	02.0		50.6	Ankaa	353	47.7	S	42	28.3
	16	327	05.3	70	27.3		36.0	352	25.8		39.2	118	26.8		29.4	296	04.5		50.6	Antares	113	06.9	S	26	22.1
	17	342	07.8	85	26.4		36.4	7	26.5		38.5	133	28.9		29.5	311	07.0		50.6						
	18	357	10.2	100	25.4	S 22	36.8	22	27.2	S 11	37.8	148	31.0	S 10	29.6	326	09.6	N 9	50.6	Arcturus	146	25.8	N	19	20.1
	19	12	12.7	115	24.5		37.1	37	27.9		37.0	163	33.1		29.8	341	12.1		50.5	Atria	108	38.9	S	68	58.5
	20	27	15.2	130	23.6		37.5	52	28.6		36.3	178	35.1		29.9	356	14.7		50.5	Avior	234	31.1	S	59	24.4
	21	42	17.6	145	22.7		37.9	67	29.3		35.6	193	37.2		30.0	11	17.2		50.5	Bellatrix	279	06.8	N	6	19.6
	22	57	20.1	160	21.8		38.3	82	30.0		34.9	208	39.3		30.2	26	19.7		50.5	Betelgeuse	271	36.4	N	7	24.3
	23	72	22.6	175	20.8		38.7	97	30.7		34.2	223	41.4		30.3	41	22.3		50.5						
19	00	87	25.0	190	19.9	S 22	39.1	112	31.5	S 11	33.5	238	43.4	S 10	30.4	56	24.8	N 9	50.5	Canopus	264	10.2	S	52	40.5
	01	102	27.5	205	19.0		39.4	127	32.2		32.7	253	45.5		30.6	71	27.3		50.5	Capella	281	22.4	N	45	58.3
	02	117	29.9	220	18.1		39.8	142	32.9		32.0	268	47.6		30.7	86	29.9		50.4	Deneb	49	54.3	N	45	10.4
	03	132	32.4	235	17.2		40.2	157	33.6		31.3	283	49.7		30.8	101	32.4		50.4	Denebola	183	07.0	N	14	44.3
	04	147	34.9	250	16.2		40.6	172	34.3		30.6	298	51.8		31.0	116	35.0		50.4	Diphda	349	28.6	S	18	09.1
	05	162	37.3	265	15.3		40.9	187	35.0		29.9	313	53.8		31.1	131	37.5		50.4						
	06	177	39.8	280	14.4	S 22	41.3	202	35.7	S 11	29.2	328	55.9	S 10	31.2	146	40.0	N 9	50.4	Dubhe	194	31.2	N	61	54.5
	07	192	42.3	295	13.5		41.7	217	36.4		28.4	343	58.0		31.4	161	42.6		50.4	Elnath	278	53.7	N	28	35.2
	08	207	44.7	310	12.5		42.1	232	37.1		27.7	359	00.1		31.5	176	45.1		50.4	Eltanin	91	01.9	N	51	29.4
	09	222	47.2	325	11.6		42.4	247	37.8		27.0	14	02.1		31.7	191	47.6		50.3	Enif	34	19.5	N	9	44.2
	10	237	49.7	340	10.7		42.8	262	38.5		26.3	29	04.2		31.8	206	50.2		50.3	Fomalhaut	16	00.0	S	29	47.1
	11	252	52.1	355	09.8		43.2	277	39.2		25.6	44	06.3		31.9	221	52.7		50.3						
	12	267	54.6	10	08.9	S 22	43.5	292	39.9	S 11	24.8	59	08.4	S 10	32.1	236	55.2	N 9	50.3	Gacrux	172	37.9	S	56	56.5
	13	282	57.1	25	07.9		43.9	307	40.6		24.1	74	10.5		32.2	251	57.8		50.3	Gienah	176	26.2	S	17	22.4
	14	297	59.5	40	07.0		44.3	322	41.4		23.4	89	12.5		32.3	267	00.3		50.3	Hadar	149	35.2	S	60	13.6
	15	313	02.0	55	06.1		44.6	337	42.1		22.7	104	14.6		32.5	282	02.8		50.3	Hamal	328	37.6	N	23	19.5
	16	328	04.4	70	05.2		45.0	352	42.8		22.0	119	16.7		32.6	297	05.4		50.3	Kaus Aust.	84	27.6	S	34	24.2
	17	343	06.9	85	04.2		45.3	7	43.5		21.3	134	18.8		32.7	312	07.9		50.2						
	18	358	09.4	100	03.3	S 22	45.7	22	44.2	S 11	20.5	149	20.9	S 10	32.9	327	10.4	N 9	50.2	Kochab	137	18.9	N	74	16.4
	19	13	11.8	115	02.4		46.1	37	44.9		19.8	164	22.9		33.0	342	13.0		50.2	Markab	14	11.1	N	15	02.7
	20	28	14.3	130	01.4		46.4	52	45.6		19.1	179	25.0		33.1	357	15.5		50.2	Menkar	314	49.1	N	3	58.5
	21	43	16.8	145	00.5		46.8	67	46.3		18.4	194	27.1		33.3	12	18.1		50.2	Menkent	148	46.6	S	36	13.3
	22	58	19.2	159	59.6		47.1	82	47.0		17.7	209	29.2		33.4	27	20.6		50.2	Miaplacidus	221	46.5	S	69	35.2
	23	73	21.7	174	58.7		47.5	97	47.7		16.9	224	31.3		33.5	42	23.1		50.2						
20	00	88	24.2	189	57.7	S 22	47.8	112	48.4	S 11	16.2	239	33.3	S 10	33.7	57	25.7	N 9	50.2	Mirfak	309	27.1	N	49	45.6
	01	103	26.6	204	56.8		48.2	127	49.1		15.5	254	35.4		33.8	72	28.2		50.1	Nunki	76	39.2	S	26	20.3
	02	118	29.1	219	55.9		48.5	142	49.9		14.8	269	37.5		33.9	87	30.7		50.1	Peacock	54	11.1	S	56	50.2
	03	133	31.6	234	55.0		48.9	157	50.6		14.1	284	39.6		34.1	102	33.2		50.1	Pollux	244	07.4	N	28	06.0
	04	148	34.0	249	54.0		49.2	172	51.3		13.3	299	41.7		34.2	117	35.8		50.1	Procyon	245	33.7	N	5	18.3
	05	163	36.5	264	53.1		49.6	187	52.0		12.6	314	43.8		34.3	132	38.3		50.1						
	06	178	38.9	279	52.2	S 22	49.9	202	52.7	S 11	11.9	329	45.8	S 10	34.5	147	40.8	N 9	50.1	Rasalhague	96	37.2	N	12	34.7
	07	193	41.4	294	51.2		50.3	217	53.4		11.2	344	47.9		34.6	162	43.4		50.1	Regulus	208	18.1	N	12	06.9
	08	208	43.9	309	50.3		50.6	232	54.1		10.4	359													

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise					
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	18	19	20	21	
d	h	°	'	°	'	°	'	°	'	°	'	°	'	°	'	°	'
1800	00	180	54.0	S 23	22.9	69	06.0	13.7	N 10	25.5	14.5	57.0					
	01	195	53.7		23.0	83	38.7	13.7	10	40.0	14.6	57.0					
	02	210	53.4		23.1	98	11.4	13.6	10	54.6	14.4	56.9					
	03	225	53.1	..	23.1	112	44.0	13.6	11	09.0	14.4	56.9					
	04	240	52.7		23.2	127	16.6	13.6	11	23.4	14.3	56.9					
	05	255	52.4		23.3	141	49.2	13.6	11	37.7	14.3	56.9					
	06	270	52.1	S 23	23.4	156	21.8	13.5	N 11	52.0	14.2	56.8					
	07	285	51.8		23.4	170	54.3	13.5	12	06.2	14.2	56.8					
	08	300	51.5		23.5	185	26.8	13.5	12	20.4	14.0	56.8					
	09	315	51.2	..	23.6	199	59.3	13.4	12	34.4	14.0	56.7					
THURSDAY	10	330	50.9		23.6	214	31.7	13.4	12	48.4	14.0	56.7					
	11	345	50.6		23.7	229	04.1	13.4	13	02.4	13.8	56.7					
	12	0	50.3	S 23	23.8	243	36.5	13.4	N 13	16.2	13.8	56.7					
	13	15	50.0		23.9	258	08.9	13.3	13	30.0	13.8	56.6					
	14	30	49.7		23.9	272	41.2	13.3	13	43.8	13.6	56.6					
	15	45	49.4	..	24.0	287	13.5	13.2	13	57.4	13.6	56.6					
	16	60	49.1		24.1	301	45.7	13.2	14	11.0	13.5	56.6					
	17	75	48.8		24.1	316	17.9	13.2	14	24.5	13.4	56.5					
	18	90	48.4	S 23	24.2	330	50.1	13.1	N 14	37.9	13.4	56.5					
	19	105	48.1		24.3	345	22.2	13.1	14	51.3	13.3	56.5					
FRIDAY	20	120	47.8		24.3	359	54.3	13.1	15	04.6	13.2	56.5					
	21	135	47.5	..	24.4	14	26.4	13.0	15	17.8	13.1	56.4					
	22	150	47.2		24.4	28	58.4	12.9	15	30.9	13.0	56.4					
	23	165	46.9		24.5	43	30.3	13.0	15	43.9	13.0	56.4					
	1900	180	46.6	S 23	24.6	58	02.3	12.9	N 15	56.9	12.9	56.4					
	01	195	46.3		24.6	72	34.2	12.8	16	09.8	12.8	56.4					
	02	210	46.0		24.7	87	06.0	12.8	16	22.6	12.7	56.3					
	03	225	45.7	..	24.7	101	37.8	12.8	16	35.3	12.6	56.3					
	04	240	45.4		24.8	116	09.6	12.7	16	47.9	12.6	56.3					
	05	255	45.1		24.8	130	41.3	12.6	17	00.5	12.4	56.3					
SATURDAY	06	270	44.8	S 23	24.9	145	12.9	12.7	N 17	12.9	12.4	56.2					
	07	285	44.4		25.0	159	44.6	12.5	17	25.3	12.3	56.2					
	08	300	44.1		25.0	174	16.1	12.6	17	37.6	12.2	56.2					
	09	315	43.8	..	25.1	188	47.7	12.4	17	49.8	12.1	56.2					
	10	330	43.5		25.1	203	19.1	12.5	18	01.9	12.0	56.1					
	11	345	43.2		25.2	217	50.6	12.3	18	13.9	11.9	56.1					
	12	0	42.9	S 23	25.2	232	21.9	12.4	N 18	25.8	11.8	56.1					
	13	15	42.6		25.3	246	53.3	12.2	18	37.6	11.7	56.1					
	14	30	42.3		25.3	261	24.5	12.3	18	49.3	11.7	56.1					
	15	45	42.0	..	25.4	275	55.8	12.2	19	01.0	11.5	56.0					
SUNDAY	16	60	41.7		25.4	290	27.0	12.1	19	12.5	11.5	56.0					
	17	75	41.4		25.4	304	58.1	12.0	19	24.0	11.3	56.0					
	18	90	41.0	S 23	25.5	319	29.1	12.1	N 19	35.3	11.3	56.0					
	19	105	40.7		25.5	334	00.2	11.9	19	46.6	11.1	55.9					
	20	120	40.4		25.6	348	31.1	12.0	19	57.7	11.0	55.9					
	21	135	40.1	..	25.6	3	02.1	11.8	20	08.7	11.0	55.9					
	22	150	39.8		25.7	17	32.9	11.8	20	19.7	10.8	55.9					
	23	165	39.5		25.7	32	03.7	11.8	20	30.5	10.8	55.9					
	2000	180	39.2	S 23	25.7	46	34.5	11.7	N 20	41.3	10.6	55.8					
	01	195	38.9		25.8	61	05.2	11.6	20	51.9	10.5	55.8					
MONDAY	02	210	38.6		25.8	75	35.8	11.6	21	02.4	10.5	55.8					
	03	225	38.3	..	25.9	90	06.4	11.6	21	12.9	10.3	55.8					
	04	240	38.0		25.9	104	37.0	11.5	21	23.2	10.2	55.8					
	05	255	37.6		25.9	119	07.5	11.4	21	33.4	10.1	55.7					
	06	270	37.3	S 23	26.0	133	37.9	11.4	N 21	43.5	10.0	55.7					
	07	285	37.0		26.0	148	08.3	11.3	21	53.5	9.8	55.7					
	08	300	36.7		26.0	162	38.6	11.3	22	03.3	9.8	55.7					
	09	315	36.4	..	26.1	177	08.9	11.2	22	13.1	9.7	55.7					
	10	330	36.1		26.1	191	39.1	11.1	22	22.8	9.5	55.6					
	11	345	35.8		26.1	206	09.2	11.2	22	32.3	9.4	55.6					
TUESDAY	12	0	35.5	S 23	26.2	220	39.4	11.0	N 22	41.7	9.4	55.6					
	13	15	35.2		26.2	235	09.4	11.0	22	51.1	9.2	55.6					
	14	30	34.9		26.2	249	39.4	10.9	23	00.3	9.0	55.6					
	15	45	34.5	..	26.2	264	09.3	10.9	23	09.3	9.0	55.5					
	16	60	34.2		26.3	278	39.2	10.9	23	18.3	8.9	55.5					
	17	75	33.9		26.3	293	09.1	10.8	23	27.2	8.7	55.5					
	18	90	33.6	S 23	26.3	307	38.9	10.7	N 23	35.9	8.6	55.5					
	19	105	33.3		26.4	322	08.6	10.7	23	44.5	8.5	55.5					
	20	120	33.0		26.4	336	38.3	10.6	23	53.0	8.3	55.4					
	21	135	32.7	..	26.4	351	07.9	10.6	24	01.3	8.3	55.4					
WEDNESDAY	22	150	32.4		26.4	5	37.5	10.5	24	09.6	8.1	55.4					
	23	165	32.1		26.4	20	07.0	10.5	24	17.7	8.0	55.4					
	S.D. 16.3 d 0.0 S.D. 15.4 15.3 15.1																

		ARIES		VENUS -3.4		MARS +0.9		JUPITER -1.4		SATURN +0.4		STARS			
G.M.T.		G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d	h														
21	00	89 23.3	189 35.4	S 22 55.9	113 05.5	S 10 58.9	240 23.4	S 10 36.8	58 26.4	N 9 49.9			Acamar	315 42.7	S 40 25.5
	01	104 25.8	204 34.4	56.2	128 06.2	58.2	255 25.4	37.0	73 28.9	49.9			Achernar	335 50.5	S 57 23.5
	02	119 28.2	219 33.5	56.6	143 06.9	57.4	270 27.5	37.1	88 31.4	49.8			Arcturus	173 46.5	S 62 55.7
	03	134 30.7	234 32.6	56.9	158 07.6	56.7	285 29.6	37.2	103 34.0	49.8			Adhara	255 37.9	S 28 55.6
	04	149 33.2	249 31.6	57.2	173 08.4	56.0	300 31.7	37.4	118 36.5	49.8			Aldebaran	291 26.7	N 16 27.2
05	164 35.6	264 30.7	57.5	188 09.1	55.3	315 33.8	37.5	133 39.0	49.8						
06	179 38.1	279 29.8	S 22 57.8	203 09.8	S 10 54.5	330 35.9	S 10 37.6	148 41.6	N 9 49.8			Alioth	166 49.2	N 56 07.0	
07	194 40.5	294 28.8	58.1	218 10.5	53.8	345 38.0	37.8	163 44.1	49.8			Alkaid	153 24.7	N 49 27.4	
08	209 43.0	309 27.9	58.4	233 11.2	53.1	0 40.0	37.9	178 46.6	49.8			Al Na'ir	28 24.8	S 47 06.7	
SUNDAY	09	224 45.5	324 27.0	58.8	248 11.9	52.4	15 42.1	38.0	193 49.1	49.8			Alnilam	276 19.3	S 1 13.0
	10	239 47.9	339 26.0	59.1	263 12.6	51.6	30 44.2	38.2	208 51.7	49.8			Alphard	218 28.1	S 8 31.5
	11	254 50.4	354 25.1	59.4	278 13.3	50.9	45 46.3	38.3	223 54.2	49.8					
	12	269 52.9	9 24.1	S 22 59.7	293 14.1	S 10 50.2	60 48.4	S 10 38.4	238 56.7	N 9 49.7			Alphecca	126 39.0	N 26 48.7
	13	284 55.3	24 23.2	23 00.0	308 14.8	49.5	75 50.5	38.5	253 59.2	49.7			Alpheratz	358 17.5	N 28 55.7
14	299 57.8	39 22.3	00.3	323 15.5	48.7	90 52.6	38.7	269 01.8	49.7			Altair	62 40.5	N 8 47.2	
15	315 00.3	54 21.3	00.6	338 16.2	48.0	105 54.7	38.8	284 04.3	49.7			Antaa	353 47.7	S 42 28.3	
16	330 02.7	69 20.4	00.9	353 16.9	47.3	120 56.7	38.9	299 06.8	49.7			Antares	113 06.9	S 26 22.1	
17	345 05.2	84 19.5	01.2	8 17.6	46.6	135 58.8	39.1	314 09.4	49.7						
18	0 07.7	99 18.5	S 23 01.5	23 18.3	S 10 45.8	151 00.9	S 10 39.2	329 11.9	N 9 49.7			Arcturus	146 25.7	N 19 20.1	
19	15 10.1	114 17.6	01.8	38 19.1	45.1	166 03.0	39.3	344 14.4	49.7			Atria	108 38.8	S 68 58.5	
20	30 12.6	129 16.6	02.1	53 19.8	44.4	181 05.1	39.5	359 16.9	49.7			Avior	234 31.1	S 59 24.5	
21	45 15.0	144 15.7	02.4	68 20.5	43.6	196 07.2	39.6	14 19.5	49.7			Bellatrix	279 06.8	N 6 19.6	
22	60 17.5	159 14.8	02.7	83 21.2	42.9	211 09.3	39.7	29 22.0	49.6			Betelgeuse	271 36.4	N 7 24.3	
23	75 20.0	174 13.8	03.0	98 21.9	42.2	226 11.4	39.8	44 24.5	49.6						
22	00	90 22.4	189 12.9	S 23 03.3	113 22.6	S 10 41.5	241 13.5	S 10 40.0	59 27.0	N 9 49.6			Canopus	264 10.2	S 52 40.5
	01	105 24.9	204 11.9	03.6	128 23.4	40.7	256 15.6	40.1	74 29.6	49.6			Capella	281 22.4	N 45 58.3
	02	120 27.4	219 11.0	03.9	143 24.1	40.0	271 17.6	40.2	89 32.1	49.6			Deneb	49 54.3	N 45 10.4
	03	135 29.8	234 10.0	04.2	158 24.8	39.3	286 19.7	40.4	104 34.6	49.6			Denebola	183 06.9	N 14 44.3
	04	150 32.3	249 09.1	04.5	173 25.5	38.6	301 21.8	40.5	119 37.1	49.6			Diphda	349 28.6	S 18 09.1
05	165 34.8	264 08.2	04.8	188 26.2	37.8	316 23.9	40.6	134 39.6	49.6						
06	180 37.2	279 07.2	S 23 05.0	203 26.9	S 10 37.1	331 26.0	S 10 40.8	149 42.2	N 9 49.6			Dubhe	194 31.2	N 61 54.5	
07	195 39.7	294 06.3	05.3	218 27.7	36.4	346 28.1	40.9	164 44.7	49.6			Elnath	278 53.7	N 28 35.2	
08	210 42.1	309 05.3	05.6	233 28.4	35.6	1 30.2	41.0	179 47.2	49.6			Eltanin	91 01.9	N 51 29.4	
MONDAY	09	225 44.6	324 04.4	05.9	248 29.1	34.9	16 32.3	41.1	194 49.7	49.5			Enif	34 19.5	N 9 44.2
	10	240 47.1	339 03.5	06.2	263 29.8	34.2	31 34.4	41.3	209 52.3	49.5			Fomalhaut	16 00.0	S 29 47.1
	11	255 49.5	354 02.5	06.5	278 30.5	33.5	46 36.5	41.4	224 54.8	49.5					
	12	270 52.0	9 01.6	S 23 06.7	293 31.2	S 10 32.7	61 38.6	S 10 41.5	239 57.3	N 9 49.5			Gacrux	172 37.9	S 56 56.5
	13	285 54.5	24 00.6	07.0	308 32.0	32.0	76 40.6	41.7	254 59.8	49.5			Gienah	176 26.1	S 17 22.4
14	300 56.9	38 59.7	07.3	323 32.7	31.3	91 42.7	41.8	270 02.4	49.5			Hadar	149 35.2	S 60 13.6	
15	315 59.4	53 58.7	07.6	338 33.4	30.5	106 44.8	41.9	285 04.9	49.5			Hamal	328 37.6	N 23 19.5	
16	331 01.9	68 57.8	07.8	353 34.1	29.8	121 46.9	42.0	300 07.4	49.5			Kaus Aust.	84 27.6	S 34 24.2	
17	346 04.3	83 56.8	08.1	8 34.8	29.1	136 49.0	42.2	315 09.9	49.5						
18	1 06.8	98 55.9	S 23 08.4	23 35.5	S 10 28.3	151 51.1	S 10 42.3	330 12.4	N 9 49.5			Kochab	137 18.9	N 74 16.3	
19	16 09.3	113 55.0	08.6	38 36.3	27.6	166 53.2	42.4	345 15.0	49.5			Markab	14 11.1	N 15 02.7	
20	31 11.7	128 54.0	08.9	53 37.0	26.9	181 55.3	42.6	0 17.5	49.5			Menkar	314 49.1	N 3 58.5	
21	46 14.2	143 53.1	09.2	68 37.7	26.2	196 57.4	42.7	15 20.0	49.4			Menkent	148 46.6	S 36 13.3	
22	61 16.6	158 52.1	09.5	83 38.4	25.4	211 59.5	42.8	30 22.5	49.4			Miaplacidus	221 46.4	S 69 35.3	
23	76 19.1	173 51.2	09.7	98 39.1	24.7	227 01.6	42.9	45 25.0	49.4						
23	00	91 21.6	188 50.2	S 23 10.0	113 39.9	S 10 24.0	242 03.7	S 10 43.1	60 27.6	N 9 49.4			Mirfak	309 27.1	N 49 45.6
	01	106 24.0	203 49.3	10.2	128 40.6	23.2	257 05.8	43.2	75 30.1	49.4			Nunki	76 39.2	S 26 20.3
	02	121 26.5	218 48.3	10.5	143 41.3	22.5	272 07.8	43.3	90 32.6	49.4			Peacock	54 11.1	S 56 50.2
	03	136 29.0	233 47.4	10.8	158 42.0	21.8	287 09.9	43.5	105 35.1	49.4			Pollux	244 07.4	N 28 06.0
	04	151 31.4	248 46.4	11.0	173 42.7	21.0	302 12.0	43.6	120 37.6	49.4			Procyon	245 33.7	N 5 18.3
05	166 33.9	263 45.5	11.3	188 43.4	20.3	317 14.1	43.7	135 40.2	49.4						
06	181 36.4	278 44.5	S 23 11.5	203 44.2	S 10 19.6	332 16.2	S 10 43.8	150 42.7	N 9 49.4			Rasalhague	96 37.2	N 12 34.7	
07	196 38.8	293 43.6	11.8	218 44.9	18.8	347 18.3	44.0	165 45.2	49.4			Regulus	208 18.1	N 12 06.9	
08	211 41.3	308 42.6	12.1	233 45.6	18.1	2 20.4	44.1	180 47.7	49.4			Rigel	281 43.2	S 8 14.0	
TUESDAY	09	226 43.8	323 41.7	12.3	248 46.3	17.4	17 22.5	44.2	195 50.2	49.4			Rigel Kent.	140 37.2	S 60 42.5
	10	241 46.2	338 40.7	12.6	263 47.0	16.6	32 24.6	44.3	210 52.8	49.4			Sabik	102 50.5	S 15 41.5
	11	256 48.7	353 39.8	12.8	278 47.8	15.9	47 26.7	44.5	225 55.3	49.3					
	12	271 51.1	8 38.9	S 23 13.1	293 48.5	S 10 15.2	62 28.8	S 10 44.6	240 57.8	N 9 49.3			Schedar	350 18.2	N 56 22.7
	13	286 53.6	23 37.9	13.3	308 49.2	14.4	77 30.9	44.7	256 00.3	49.3			Shaula	97 06.9	S 37 05.1
14	301 56.1	38 37.0	13.6	323 49.9	13.7	92 33.0	44.9	271 02.8	49.3			Sirius	259 02.3	S 16 40.3	
15	316 58.5	53 36.0	13.8	338 50.6	13.0	107 35.1	45.0	286 05.3	49.3			Spica	159 06.0	S 11 00.3	
16	332 01.0	68 35.1	14.1	353 51.4	12.3	122 37.2	45.1	301 07.9	49.3			Suhail	223 16.4	S 43 18.4	
17	347 03.5	83 34.1	14.3	8 52.1	11.5	137 39.3	45.2	316 10.4	49.3						
18	2 05.9	98 33.2	S 23 14.5	23 52.8	S 10 10.8	152 41.4	S 10 45.4	331 12.9	N 9 49.3			Vega	81 01.6	N 38 45.2	
19	17 08.4	113 32.2	14.8	38 53.5	10.1	167 43.5	45.5	346 15.4	49.3			Zuben'ubi	137 42.0	S 15 55.1	
20	32 10.9	128 31.2	15.0	53 54.3	09.3	182 45.6	45.6	1 17.9	49.3						
21	47 13.3	143 30.3	15.3	68 55.0	08.6	197 47.7	45.7	16 20.4	49.3						
22	62 15.8	158 29.3	15.5	83 55.7	07.9	212 49.8	45.9	31 23.0	49.3			Venus	98 50.5	11 24	
23	77 18.3	173 28.4	15.7	98 56.4	07.1	227 51.9	46.0	46 25.5	49.3			Mars	23 00.2	16 26	
													Jupiter	150 51.1	7 54
													Saturn	329 04.6	19 59
Mer. Pass. 17 55 ^h 56 ^m															
v -0.9 d 0.3				v 0.7 d 0.7				v 2.1 d 0.1				v 2.5 d 0.0</			

G.M.T.		SUN				MOON				Lat.	Twilight		Sun-rise	Moonrise							
		G.H.A.	Dec.			G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	21	22	23	24			
d	h	°	'	"		°	'	"			°	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>
21	00	180	31.8	S 23	26.5	34	36.5	10.4	N 24	25.7	7.9	55.4	N 70	08 06	09 55	10 35	11 46	12 36	13 38	14 31	
	01	195	31.5		26.5	49	05.9	10.4	24	33.6	7.7	55.4	68	07 50	09 19	10 35	11 46	12 36	13 38	14 31	
	02	210	31.1		26.5	63	35.3	10.3	24	41.3	7.7	55.3	66	07 37	08 54	10 35	11 46	12 36	13 38	14 31	
	03	225	30.8		26.5	78	04.6	10.3	24	49.0	7.5	55.3	64	07 26	08 34	09 52	10 45	11 35	12 36	13 38	
	04	240	30.5		26.5	92	33.9	10.2	24	56.5	7.3	55.3	62	07 16	08 18	09 24	10 45	11 35	12 36	13 38	
05	255	30.2		26.6	107	03.1	10.2	25	03.8	7.3	55.3	60	07 08	08 05	09 02	10 45	11 35	12 36	13 38	14 31	
06	270	29.9	S 23	26.6	121	32.3	10.2	N 25	11.1	7.1	55.3	N 58	07 00	07 53	08 45	12 45	13 10	13 56	15 03		
07	285	29.6		26.6	136	01.5	10.0	25	18.2	7.0	55.2	56	06 53	07 42	08 30	13 05	13 35	14 22	15 27		
08	300	29.3		26.6	150	30.5	10.1	25	25.2	6.8	55.2	54	06 47	07 33	08 17	13 21	13 55	14 44	15 46		
S 09	315	29.0		26.6	164	59.6	10.0	25	32.0	6.7	55.2	52	06 42	07 25	08 06	13 36	14 12	15 01	16 03		
U 10	330	28.7		26.6	179	28.6	9.9	25	38.7	6.6	55.2	50	06 36	07 18	07 56	13 48	14 26	15 16	16 17		
N 11	345	28.4		26.6	193	57.5	10.0	25	45.3	6.5	55.2	45	06 24	07 02	07 35	14 14	14 56	15 46	16 45		
D 12	0	28.0	S 23	26.6	208	26.5	9.8	N 25	51.8	6.3	55.2	N 40	06 14	06 48	07 19	14 35	15 19	16 10	17 07		
A 13	15	27.7		26.7	222	55.3	9.9	25	58.1	6.2	55.1	35	06 05	06 36	07 04	14 52	15 38	16 29	17 26		
Y 14	30	27.4		26.7	237	24.2	9.7	26	04.3	6.1	55.1	30	05 56	06 26	06 52	15 07	15 54	16 46	17 42		
15	45	27.1		26.7	251	52.9	9.8	26	10.4	5.9	55.1	20	05 39	06 07	06 31	15 33	16 22	17 14	18 08		
16	60	26.8		26.7	266	21.7	9.7	26	16.3	5.8	55.1	N 10	05 23	05 49	06 12	15 55	16 46	17 38	18 31		
17	75	26.5		26.7	280	50.4	9.7	26	22.1	5.6	55.1	0	05 06	05 32	05 55	16 16	17 08	18 01	18 53		
18	90	26.2	S 23	26.7	295	19.1	9.6	N 26	27.7	5.6	55.1	S 10	04 47	05 14	05 37	16 36	17 30	18 23	19 14		
19	105	25.9		26.7	309	47.7	9.6	26	33.3	5.3	55.0	20	04 24	04 54	05 18	16 59	17 54	18 48	19 37		
20	120	25.6		26.7	324	16.3	9.6	26	38.6	5.3	55.0	30	03 55	04 29	04 56	17 25	18 22	19 16	20 03		
21	135	25.2		26.7	338	44.9	9.5	26	43.9	5.1	55.0	35	03 37	04 13	04 43	17 40	18 39	19 32	20 19		
22	150	24.9		26.7	353	13.4	9.5	26	49.0	5.0	55.0	40	03 13	03 55	04 28	17 58	18 58	19 52	20 37		
23	165	24.6		26.7	7	41.9	9.5	26	54.0	4.8	55.0	45	02 43	03 33	04 10	18 20	19 22	20 15	20 59		
22	00	180	24.3	S 23	26.7	22	10.4	9.4	N 26	58.8	4.7	55.0	S 50	01 57	03 03	03 47	18 47	19 52	20 46	21 40	
	01	195	24.0		26.7	36	38.8	9.4	27	03.5	4.5	55.0	52	01 29	02 48	03 36	19 01	20 07	21 01	21 26	
	02	210	23.7		26.7	51	07.2	9.4	27	08.0	4.4	54.9	54	00 42	02 30	03 24	19 17	20 25	21 18	21 55	
	03	225	23.4		26.7	65	35.6	9.3	27	12.4	4.3	54.9	56	///	02 07	03 10	19 35	20 46	21 39	22 13	
	04	240	23.1		26.7	80	03.9	9.3	27	16.7	4.2	54.9	58	///	01 37	02 53	19 58	21 13	22 06	22 35	
05	255	22.8		26.7	94	32.2	9.3	27	20.9	3.9	54.9	S 60	///	00 47	02 33	20 28	21 52	22 43	23 04		
06	270	22.5	S 23	26.7	109	00.5	9.3	N 27	24.8	3.9	54.9										
07	285	22.1		26.7	123	28.8	9.3	27	28.7	3.7	54.9										
08	300	21.8		26.7	137	57.1	9.2	27	32.4	3.6	54.8										
M 09	315	21.5		26.7	152	25.3	9.2	27	36.0	3.4	54.8										
MON 10	330	21.2		26.7	166	53.5	9.2	27	39.4	3.3	54.8										
N 11	345	20.9		26.7	181	21.7	9.2	27	42.7	3.1	54.8										
D 12	0	20.6	S 23	26.7	195	49.9	9.1	N 27	45.8	3.0	54.8										
A 13	15	20.3		26.7	210	18.0	9.2	27	48.8	2.9	54.8										
Y 14	30	20.0		26.6	224	46.2	9.1	27	51.7	2.7	54.8										
15	45	19.7		26.6	239	14.3	9.1	27	54.4	2.5	54.7										
16	60	19.4		26.6	253	42.4	9.1	27	56.9	2.5	54.7										
17	75	19.0		26.6	268	10.5	9.1	27	59.4	2.2	54.7										
18	90	18.7	S 23	26.6	282	38.6	9.1	N 28	01.6	2.2	54.7										
19	105	18.4		26.6	297	06.7	9.1	28	03.8	2.0	54.7										
20	120	18.1		26.6	311	34.8	9.1	28	05.8	1.8	54.7										
21	135	17.8		26.5	326	02.9	9.1	28	07.6	1.7	54.7										
22	150	17.5		26.5	340	31.0	9.1	28	09.3	1.6	54.7										
23	165	17.2		26.5	354	59.1	9.0	28	10.9	1.4	54.6										
23	00	180	16.9	S 23	26.5	9	27.1	9.1	N 28	12.3	1.3	54.6	N 40	16 38	17 09	17 43	05 25	06 28	07 25	08 14	
	01	195	16.6		26.5	23	55.2	9.1	28	13.6	1.1	54.6	35	16 53	17 21	17 53	05 08	06 09	07 05	07 55	
	02	210	16.2		26.5	38	23.3	9.1	28	14.7	1.0	54.6	30	17 05	17 31	18 01	04 54	05 53	06 49	07 39	
	03	225	15.9		26.4	52	51.4	9.1	28	15.7	0.8	54.6	20	17 26	17 50	18 18	04 29	05 26	06 20	07 12	
	04	240	15.6		26.4	67	19.5	9.1	28	16.5	0.7	54.6	N 10	17 45	18 08	18 34	04 08	05 02	05 56	06 48	
05	255	15.3		26.4	81	47.6	9.1	28	17.2	0.5	54.6	0	18 02	18 25	18 51	03 49	04 41	05 34	06 26		
06	270	15.0	S 23	26.4	96	15.7	9.1	N 28	17.7	0.4	54.6	S 10	18 20	18 43	19 10	03 29	04 19	05 11	06 04		
07	285	14.7		26.3	110	43.8	9.1	28	18.1	0.3	54.5	20	18 39	19 03	19 33	03 09	03 56	04 47	05 40		
08	300	14.4		26.3	125	11.9	9.1	28	18.4	0.1	54.5	30	19 01	19 29	20 02	02 45	03 29	04 18	05 12		
T 09	315	14.1		26.3	139	40.0	9.2	28	18.5	0.0	54.5	35	19 14	19 44	20 21	02 31	03 13	04 02	04 56		
U 10	330	13.8		26.3	154	08.2	9.1	28	18.5	0.2	54.5	40	19 29	20 02	20 44	02 15	02 55	03 42	04 37		
N 11	345	13.5		26.2	168	36.3	9.2	28	18.3	0.3	54.5	45	19 47	20 25	21 14	01 55	02 32	03 18	04 13		
D 12	0	13.1	S 23	26.2	183	04.5	9.2	N 28	18.0	0.4	54.5	S 50	20 10	20 54	22 00	01 31	02 04	02 48	03 43		
A 13	15	12.8		26.2	197	32.7	9.3	28	17.6	0.6	54.5	52	20 21	21 10	22 28	01 20	01 50	02 33	03 29		
Y 14	30	12.5		26.1	212	01.0	9.2	28	17.0	0.8	54.5	54	20 33	21 28	23 15	01 07	01 34	02 15	03 11		
15	45	12.2		26.1	226	29.2	9.3	28	16.2	0.9	54.4	56	20 47	21 50	///	00 52	01 16	01 54	02 50		
16	60	11.9		26.1	240	57.5	9.3	28	15.3	1.0	54.4	58	21 04	22 20	///	00 34	00 52	01 27	02 24		
17	75	11.6		26.1	255	25.8	9.3	28	14.3	1.2	54.4	S 60	21 25	23 10	///	00 13	00 22	00 48	01 47		
18	90	11.3	S 23	26.0	269	54.1	9.3	N 28	13.1	1.3	54.4										
19	105	11.0		26.0	284	22.4	9.4	28	11.8	1.4	54.4										
20	120	10.7		25.9	298	50.8	9.4	28	10.4	1.6	54.4										
21	135	10.4		25.9	313	19.2	9.4	28	08.8	1.7	54.4										
22	150	10.0		25.9	327	47.6	9.5	28	07.1	1.9	54.4										
23	165	09.7		25.8	342	16.1	9.5	28	05.2	2.0	54.4										
S.D. 16-3		d	0-0		S.D.	15-0		14-9		14-8											
Day	SUN				MOON				Day	Eqn. of Time		Mer. Pass.	MOON								
21	02 08	01 53	11 58	22 28	10 02	12															
22	01 38	01 23	11 59	23 21	10 54	13															
23	01 08	00 53	11 59	24 13	11 47	14															

G.M.T.	ARIES			VENUS -3.4			MARS +0.9			JUPITER -1.4			SATURN +0.4			STARS		
	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "
24 00	92 20.7	188 27.4	S 23 16.0	113 57.1	S 10 06.4		242 54.0	S 10 46.1		61 28.0	N 9 49.3		Acamar	315 42.7	S 40 25.5			
01	107 23.2	203 26.5	16.2	128 57.9	05.7		257 56.1	46.2		76 30.5	49.3		Achernar	335 50.6	S 57 23.5			
02	122 25.6	218 25.5	16.4	143 58.6	04.9		272 58.2	46.4		91 33.0	49.3		Acrux	173 46.4	S 62 55.7			
03	137 28.1	233 24.6	16.7	158 59.3	04.2		288 00.3	46.5		106 35.5	49.2		Adhara	255 37.9	S 28 55.7			
04	152 30.6	248 23.6	16.9	174 00.0	03.4		303 02.4	46.6		121 38.1	49.2		Aldebaran	291 26.7	N 16 27.2			
05	167 33.0	263 22.7	17.1	189 00.8	02.7		318 04.5	46.8		136 40.6	49.2							
06	182 35.5	278 21.7	S 23 17.4	204 01.5	S 10 02.0		333 06.5	S 10 46.9		151 43.1	N 9 49.2		Alioth	166 49.2	N 56 07.0			
W 07	197 38.0	293 20.8	17.6	219 02.2	01.2		348 08.6	47.0		166 45.6	49.2		Alkaid	153 24.6	N 49 27.4			
08	212 40.4	308 19.8	17.8	234 02.9	10 00.5		3 10.7	47.1		181 48.1	49.2		Al Na'ir	28 24.8	S 47 06.7			
09	227 42.9	323 18.9	18.0	249 03.6	9 59.8		18 12.8	47.3		196 50.6	49.2		Alnilam	276 19.3	S 1 13.1			
10	242 45.4	338 17.9	18.2	264 04.4	59.0		33 14.9	47.4		211 53.1	49.2		Alphard	218 28.1	S 8 31.5			
11	257 47.8	353 17.0	18.5	279 05.1	58.3		48 17.0	47.5		226 55.7	49.2							
12	272 50.3	8 16.0	S 23 18.7	294 05.8	S 9 57.6		63 19.1	S 10 47.6		241 58.2	N 9 49.2		Alphecca	126 39.0	N 26 48.7			
13	287 52.7	23 15.1	18.9	309 06.5	56.8		78 21.2	47.8		257 00.7	49.2		Alpheratz	358 17.6	N 28 55.7			
14	302 55.2	38 14.1	19.1	324 07.3	56.1		93 23.3	47.9		272 03.2	49.2		Altair	62 40.5	N 8 47.2			
15	317 57.7	53 13.1	19.3	339 08.0	55.4		108 25.4	48.0		287 05.7	49.2		Ankaa	353 47.7	S 42 28.3			
16	333 00.1	68 12.2	19.6	354 08.7	54.6		123 27.5	48.1		302 08.2	49.2		Antares	113 06.9	S 26 22.1			
17	348 02.6	83 11.2	19.8	9 09.4	53.9		138 29.6	48.3		317 10.7	49.2							
18	3 05.1	98 10.3	S 23 20.0	24 10.1	S 9 53.1		153 31.7	S 10 48.4		332 13.3	N 9 49.2		Arcturus	146 25.7	N 19 20.1			
19	18 07.5	113 09.3	20.2	39 10.9	52.4		168 33.9	48.5		347 15.8	49.2		Atria	108 38.8	S 68 58.5			
20	33 10.0	128 08.4	20.4	54 11.6	51.7		183 36.0	48.6		2 18.3	49.1		Avior	234 31.1	S 59 24.5			
21	48 12.5	143 07.4	20.6	69 12.3	50.9		198 38.1	48.8		17 20.8	49.1		Bellatrix	279 06.8	N 6 19.6			
22	63 14.9	158 06.5	20.8	84 13.0	50.2		213 40.2	48.9		32 23.3	49.1		Betelgeuse	271 36.4	N 7 24.3			
23	78 17.4	173 05.5	21.0	99 13.8	49.5		228 42.3	49.0		47 25.8	49.1							
25 00	93 19.9	188 04.5	S 23 21.2	114 14.5	S 9 48.7		243 44.4	S 10 49.1		62 28.3	N 9 49.1		Canopus	264 10.2	S 52 40.6			
01	108 22.3	203 03.6	21.4	129 15.2	48.0		258 46.5	49.3		77 30.8	49.1		Capella	281 22.4	N 45 58.3			
02	123 24.8	218 02.6	21.6	144 15.9	47.2		273 48.6	49.4		92 33.4	49.1		Deneb	49 54.3	N 45 10.4			
03	138 27.2	233 01.7	21.8	159 16.7	46.5		288 50.7	49.5		107 35.9	49.1		Denebola	183 06.9	N 14 44.3			
04	153 29.7	248 00.7	22.0	174 17.4	45.8		303 52.8	49.6		122 38.4	49.1		Diphda	349 28.6	S 18 09.1			
05	168 32.2	262 59.8	22.2	189 18.1	45.0		318 54.9	49.8		137 40.9	49.1							
06	183 34.6	277 58.8	S 23 22.4	204 18.8	S 9 44.3		333 57.0	S 10 49.9		152 43.4	N 9 49.1		Dubhe	194 31.1	N 61 54.5			
07	198 37.1	292 57.8	22.6	219 19.6	43.6		348 59.1	50.0		167 45.9	49.1		Elnath	278 53.7	N 28 35.2			
08	213 39.6	307 56.9	22.8	234 20.3	42.8		4 01.2	50.1		182 48.4	49.1		Eltanin	91 01.9	N 51 29.3			
09	228 42.0	322 55.9	23.0	249 21.0	42.1		19 03.3	50.3		197 50.9	49.1		Enif	34 19.5	N 9 44.2			
10	243 44.5	337 55.0	23.2	264 21.7	41.3		34 05.4	50.4		212 53.4	49.1		Fomalhaut	16 00.0	S 29 47.1			
11	258 47.0	352 54.0	23.4	279 22.5	40.6		49 07.5	50.5		227 56.0	49.1							
12	273 49.4	7 53.1	S 23 23.6	294 23.2	S 9 39.9		64 09.6	S 10 50.6		242 58.5	N 9 49.1		Gacrux	172 37.9	S 56 56.5			
13	288 51.9	22 52.1	23.8	309 23.9	39.1		79 11.7	50.7		258 01.0	49.1		Gienah	176 26.1	S 17 22.4			
14	303 54.4	37 51.1	24.0	324 24.6	38.4		94 13.8	50.9		273 03.5	49.1		Hadar	149 35.1	S 60 13.6			
15	318 56.8	52 50.2	24.2	339 25.4	37.7		109 15.9	51.0		288 06.0	49.1		Hamal	328 37.6	N 23 19.5			
16	333 59.3	67 49.2	24.3	354 26.1	36.9		124 18.0	51.1		303 08.5	49.1		Kaus Aust.	84 27.6	S 34 24.2			
17	349 01.7	82 48.3	24.5	9 26.8	36.2		139 20.1	51.2		318 11.0	49.1							
18	4 04.2	97 47.3	S 23 24.7	24 27.6	S 9 35.4		154 22.2	S 10 51.4		333 13.5	N 9 49.1		Kochab	137 18.8	N 74 16.3			
19	19 06.7	112 46.3	24.9	39 28.3	34.7		169 24.3	51.5		348 16.0	49.1		Markab	14 11.1	N 15 02.7			
20	34 09.1	127 45.4	25.1	54 29.0	34.0		184 26.4	51.6		3 18.5	49.1		Menkar	314 49.1	N 3 58.5			
21	49 11.6	142 44.4	25.3	69 29.7	33.2		199 28.6	51.7		18 21.0	49.1		Menkent	148 46.6	S 36 13.3			
22	64 14.1	157 43.5	25.4	84 30.5	32.5		214 30.7	51.9		33 23.5	49.1		Miaplacidus	221 46.4	S 69 35.3			
23	79 16.5	172 42.5	25.6	99 31.2	31.7		229 32.8	52.0		48 26.1	49.1							
26 00	94 19.0	187 41.5	S 23 25.8	114 31.9	S 9 31.0		244 34.9	S 10 52.1		63 28.6	N 9 49.1		Mirfak	309 27.1	N 49 45.6			
01	109 21.5	202 40.6	26.0	129 32.6	30.3		259 37.0	52.2		78 31.1	49.1		Nunki	76 39.2	S 26 20.3			
02	124 23.9	217 39.6	26.1	144 33.4	29.5		274 39.1	52.3		93 33.6	49.0		Peacock	54 11.1	S 56 50.2			
03	139 26.4	232 38.7	26.3	159 34.1	28.8		289 41.2	52.5		108 36.1	49.0		Pollux	244 07.3	N 28 06.0			
04	154 28.9	247 37.7	26.5	174 34.8	28.0		304 43.3	52.6		123 38.6	49.0		Procyon	245 33.6	N 5 18.3			
05	169 31.3	262 36.7	26.6	189 35.6	27.3		319 45.4	52.7		138 41.1	49.0							
06	184 33.8	277 35.8	S 23 26.8	204 36.3	S 9 26.6		334 47.5	S 10 52.8		153 43.6	N 9 49.0		Rasalhague	96 37.2	N 12 34.7			
07	199 36.2	292 34.8	27.0	219 37.0	25.8		349 49.6	52.9		168 46.1	49.0		Regulus	208 18.1	N 12 06.8			
08	214 38.7	307 33.9	27.1	234 37.7	25.1		4 51.7	53.1		183 48.6	49.0		Rigel	281 43.2	S 8 14.0			
09	229 41.2	322 32.9	27.3	249 38.5	24.3		19 53.8	53.2		198 51.1	49.0		Rigel Kent.	140 37.1	S 60 42.5			
F 10	244 43.6	337 31.9	27.5	264 39.2	23.6		34 55.9	53.3		213 53.6	49.0		Sabik	102 50.5	S 15 41.5			
R 11	259 46.1	352 31.0	27.6	279 39.9	22.9		49 58.1	53.4		228 56.1	49.0							
D 12	274 48.6	7 30.0	S 23 27.8	294 40.7	S 9 22.1		65 00.2	S 10 53.6		243 58.6	N 9 49.0		Schedar	350 18.2	N 56 22.7			
A 13	289 51.0	22 29.0	28.0	309 41.4	21.4		80 02.3	53.7		259 01.1	49.0		Shaula	97 06.9	S 37 05.1			
14	304 53.5	37 28.1	28.1	324 42.1	20.6		95 04.4	53.8		274 03.7	49.0		Sirius	259 02.3	S 16 40.3			
15	319 56.0	52 27.1	28.3	339 42.8	19.9		110 06.5	53.9		289 06.2	49.0		Spica	159 05.9	S 11 00.3			
16	334 58.4	67 26.2	28.4	354 43.6	19.1		125 08.6	54.0		304 08.7	49.0		Suhail	223 16.4	S 43 18.4			
17	350 00.9	82 25.2	28.6	9 44.3	18.4		140 10.7	54.2		319 11.2	49.0							
18	5 03.4	97 24.2	S 23 28.7	24 45.0	S 9 17.7		155 12.8	S 10 54.3		334 13.7	N 9 49.0		Vega	81 01.6	N 38 45.2			
19	20 05.8	112 23.3	28.9	39 45.8	16.9		170 14.9	54.4		349 16.2	49.0		Zuben'ubi	137 42.0	S 15 55.1			
20	35 08.3	127 22.3	29.0	54 46.5	16.2		185 17.0	54.5		4 18.7	49.0							
21	50 10.7	142 21.3	29.2	69 47.2	15.4		200 19.2	54.6		19 21.2	49.0		Venus	94 44.6				

G.M.T.		SUN		MOON					Lat.	Twilight		Sun-rise	Moonrise					
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>	H.P.		Naut.	Civil		24	25	26	27		
d	h	°	'	°	'	°	'	'	°	^h	^m	^h	^m	^h	^m	^h	^m	
24 WEDNESDAY	00	180	09.4	S 23	25.8	356	44.6	9.5	N 28 03.2	2.2	54.3						16 12	
	01	195	09.1		25.8	11	13.1	9.6	28 01.0	2.2	54.3					15 02	17 16	
	02	210	08.8		25.7	25	41.7	9.6	27 58.8	2.5	54.3					16 13	17 15	
	03	225	08.5		25.7	40	10.3	9.6	27 56.3	2.5	54.3					16 13	18 15	
	04	240	08.2		25.6	54	38.9	9.7	27 53.8	2.7	54.3				14 40	16 48	18 35	
	05	255	07.9		25.6	69	07.6	9.7	27 51.1	2.9	54.3				13 38	15 30	17 14	18 50
	06	270	07.6	S 23	25.6	83	36.3	9.8	N 27 48.2	2.9	54.3				14 31	16 01	17 34	19 03
	07	285	07.2		25.5	98	05.1	9.8	27 45.3	3.1	54.3							
	08	300	06.9		25.5	112	33.9	9.8	27 42.2	3.3	54.3							
	09	315	06.6		25.4	127	02.7	9.9	27 38.9	3.4	54.3							
	10	330	06.3		25.4	141	31.6	10.0	27 35.5	3.5	54.3							
	11	345	06.0		25.3	156	00.6	10.0	27 32.0	3.6	54.2							
	12	0 05.7	S 23	25.3	170	29.6	10.0	N 27 28.4	3.8	54.2								
	13	15	05.4		25.2	184	58.6	10.1	27 24.6	3.9	54.2							
	14	30	05.1		25.2	199	27.7	10.2	27 20.7	4.0	54.2							
	15	45	04.8		25.1	213	56.9	10.2	27 16.7	4.2	54.2							
	16	60	04.5		25.1	228	26.1	10.2	27 12.5	4.3	54.2							
	17	75	04.2		25.0	242	55.3	10.3	27 08.2	4.4	54.2							
25 THURSDAY	18	90	03.8	S 23	25.0	257	24.6	10.4	N 27 03.8	4.6	54.2							
	19	105	03.5		24.9	271	54.0	10.4	26 59.2	4.6	54.2							
	20	120	03.2		24.9	286	23.4	10.5	26 54.6	4.9	54.2							
	21	135	02.9		24.8	300	52.9	10.5	26 49.7	4.9	54.2							
	22	150	02.6		24.8	315	22.4	10.6	26 44.8	5.0	54.2							
	23	165	02.3		24.7	329	52.0	10.6	26 39.8	5.2	54.2							
	00	180	02.0	S 23	24.6	344	21.6	10.7	N 26 34.6	5.3	54.1							
	01	195	01.7		24.6	358	51.3	10.8	26 29.3	5.5	54.1							
	02	210	01.4		24.5	13	21.1	10.8	26 23.8	5.5	54.1							
	03	225	01.1		24.5	27	50.9	10.9	26 18.3	5.7	54.1							
	04	240	00.7		24.4	42	20.8	11.0	26 12.6	5.8	54.1							
	05	255	00.4		24.3	56	50.8	11.0	26 06.8	5.9	54.1							
	06	270	00.1	S 23	24.3	71	20.8	11.0	N 26 00.9	6.1	54.1							
	07	284	59.8		24.2	85	50.8	11.2	25 54.8	6.1	54.1							
	08	299	59.5		24.2	100	21.0	11.2	25 48.7	6.3	54.1							
	09	314	59.2		24.1	114	51.2	11.3	25 42.4	6.4	54.1							
	10	329	58.9		24.0	129	21.5	11.3	25 36.0	6.5	54.1							
	11	344	58.6		24.0	143	51.8	11.4	25 29.5	6.6	54.1							
26 FRIDAY	12	359	58.3	S 23	23.9	158	22.2	11.5	N 25 22.9	6.7	54.1							
	13	14	58.0		23.8	172	52.7	11.5	25 16.2	6.9	54.1							
	14	29	57.7		23.7	187	23.2	11.6	25 09.3	6.9	54.1							
	15	44	57.3		23.7	201	53.8	11.7	25 02.4	7.1	54.1							
	16	59	57.0		23.6	216	24.5	11.8	24 55.3	7.2	54.1							
	17	74	56.7		23.5	230	55.3	11.8	24 48.1	7.3	54.1							
	18	89	56.4	S 23	23.5	245	26.1	11.9	N 24 40.8	7.4	54.0							
	19	104	56.1		23.4	259	57.0	11.9	24 33.4	7.5	54.0							
	20	119	55.8		23.3	274	27.9	12.0	24 25.9	7.6	54.0							
	21	134	55.5		23.2	288	58.9	12.1	24 18.3	7.8	54.0							
	22	149	55.2		23.2	303	30.0	12.2	24 10.5	7.8	54.0							
	23	164	54.9		23.1	318	01.2	12.2	24 02.7	7.9	54.0							
	00	179	54.6	S 23	23.0	332	32.4	12.3	N 23 54.8	8.1	54.0							
	01	194	54.2		22.9	347	03.7	12.4	23 46.7	8.1	54.0							
	02	209	53.9		22.9	1	35.1	12.4	23 38.6	8.3	54.0							
	03	224	53.6		22.8	16	06.5	12.5	23 30.3	8.3	54.0							
	04	239	53.3		22.7	30	38.0	12.6	23 22.0	8.4	54.0							
	05	254	53.0		22.6	45	09.6	12.7	23 13.6	8.6	54.0							
06	269	52.7	S 23	22.5	59	41.3	12.7	N 23 05.0	8.6	54.0								
07	284	52.4		22.4	74	13.0	12.8	22 56.4	8.8	54.0								
08	299	52.1		22.4	88	44.8	12.8	22 47.6	8.8	54.0								
09	314	51.8		22.3	103	16.6	13.0	22 38.8	9.0	54.0								
10	329	51.5		22.2	117	48.6	13.0	22 29.8	9.0	54.0								
11	344	51.2		22.1	132	20.6	13.0	22 20.8	9.1	54.0								
27 SATURDAY	12	359	50.9	S 23	22.0	146	52.6	13.2	N 22 11.7	9.2	54.0							
	13	14	50.5		21.9	161	24.8	13.2	22 02.5	9.3	54.0							
	14	29	50.2		21.8	175	57.0	13.3	21 53.2	9.4	54.0							
	15	44	49.9		21.8	190	29.3	13.3	21 43.8	9.5	54.0							
	16	59	49.6		21.7	205	01.6	13.5	21 34.3	9.6	54.0							
	17	74	49.3		21.6	219	34.1	13.4	21 24.7	9.7	54.0							
	18	89	49.0	S 23	21.5	234	06.5	13.6	N 21 15.0	9.7	54.0							
	19	104	48.7		21.4	248	39.1	13.6	21 05.3	9.9	54.0							
	20	119	48.4		21.3	263	11.7	13.7	20 55.4	9.9	54.0							
	21	134	48.1		21.2	277	44.4	13.8	20 45.5	10.0	54.0							
	22	149	47.8		21.1	292	17.2	13.8	20 35.5	10.1	54.0							
	23	164	47.5		21.0	306	50.0	13.9	20 25.4	10.2	54.0							
	S.D. 16.3		<i>d</i>	0.1	S.D. 14.8		14.7	14.7										

G.M.T.	ARIES			VENUS -3.4			MARS +1.0			JUPITER -1.4			SATURN +0.4			STARS		
	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	G.H.A.	G.H.A.	Dec.	Name	S.H.A.	Dec.
d h	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "		° ' "	° ' "
27 00	95 18.1	187 18.4	S 23 29.6	114 49.4	S 9 13.2		245 25.5	S 10 55.0		64 28.7	N 9 49.0		Acamar	315 42.8	S 40 25.5			
01	110 20.6	202 17.5	29.8	129 50.1	12.5		260 27.6	55.1	79 31.2	49.0			Achernar	335 50.6	S 57 23.5			
02	125 23.1	217 16.5	29.9	144 50.9	11.7		275 29.7	55.2	94 33.7	49.0			Acrux	173 46.4	S 62 55.7			
03	140 25.5	232 15.6	.. 30.0	159 51.6	.. 11.0		290 31.8	.. 55.4	109 36.2	.. 49.0			Adhara	255 37.9	S 28 55.7			
04	155 28.0	247 14.6	30.2	174 52.3	10.2		305 33.9	55.5	124 38.7	49.0			Aldebaran	291 26.7	N 16 27.2			
05	170 30.5	262 13.6	30.3	189 53.1	09.5		320 36.0	55.6	139 41.2	49.0								
06	185 32.9	277 12.7	S 23 30.5	204 53.8	S 9 08.7		335 38.2	S 10 55.7	154 43.7	N 9 49.0			Alioth	166 49.1	N 56 07.0			
07	200 35.4	292 11.7	30.6	219 54.5	08.0		350 40.3	55.9	169 46.2	49.0			Alkaid	153 24.6	N 49 27.4			
S 08	215 37.9	307 10.7	30.7	234 55.3	07.3		5 42.4	56.0	184 48.7	49.0			Al Na'ir	28 24.8	S 47 06.7			
A 09	230 40.3	322 09.8	.. 30.9	249 56.0	.. 06.5		20 44.5	.. 56.1	199 51.2	.. 49.0			Alnilam	276 19.3	S 1 13.1			
T 10	245 42.8	337 08.8	31.0	264 56.7	05.8		35 46.6	56.2	214 53.7	49.0			Alphard	218 28.0	S 8 31.6			
U 11	260 45.2	352 07.8	31.1	279 57.5	05.0		50 48.7	56.3	229 56.2	49.0								
R 12	275 47.7	7 06.9	S 23 31.3	294 58.2	S 9 04.3		65 50.8	S 10 56.4	244 58.7	N 9 49.0			Alphecca	126 39.0	N 26 48.6			
D 13	290 50.2	22 05.9	31.4	309 58.9	03.5		80 52.9	56.6	260 01.2	49.0			Alpheratz	358 17.6	N 28 55.7			
A 14	305 52.6	37 04.9	31.5	324 59.6	02.8		95 55.1	56.7	275 03.7	49.0			Altair	62 40.5	N 8 47.2			
Y 15	320 55.1	52 04.0	.. 31.6	340 00.4	.. 02.1		110 57.2	.. 56.8	290 06.2	.. 49.0			Ankaa	353 47.8	S 42 28.3			
16	335 57.6	67 03.0	31.8	355 01.1	01.3		125 59.3	56.9	305 08.7	49.0			Antares	113 06.8	S 26 22.1			
17	351 00.0	82 02.0	31.9	10 01.8	9 00.6		141 01.4	57.0	320 11.2	49.0								
18	6 02.5	97 01.1	S 23 32.0	25 02.6	S 8 59.8		156 03.5	S 10 57.2	335 13.7	N 9 49.0			Arcturus	146 25.7	N 19 20.1			
19	21 05.0	112 00.1	32.1	40 03.3	59.1		171 05.6	57.3	350 16.2	49.0			Atria	108 38.8	S 68 58.5			
20	36 07.4	126 59.1	32.3	55 04.0	58.3		186 07.7	57.4	5 18.7	49.0			Avior	234 31.0	S 59 24.5			
21	51 09.9	141 58.2	.. 32.4	70 04.8	.. 57.6		201 09.9	.. 57.5	20 21.2	.. 49.0			Bellatrix	279 06.8	N 6 19.6			
22	66 12.4	156 57.2	32.5	85 05.5	56.8		216 12.0	57.6	35 23.7	49.0			Betelgeuse	271 36.4	N 7 24.3			
23	81 14.8	171 56.2	32.6	100 06.2	56.1		231 14.1	57.8	50 26.2	49.0								
28 00	96 17.3	186 55.3	S 23 32.7	115 07.0	S 8 55.4		246 16.2	S 10 57.9	65 28.7	N 9 49.0			Canopus	264 10.2	S 52 40.6			
01	111 19.7	201 54.3	32.8	130 07.7	54.6		261 18.3	58.0	80 31.2	49.0			Capella	281 22.4	N 45 58.3			
02	126 22.2	216 53.3	32.9	145 08.4	53.9		276 20.4	58.1	95 33.7	49.0			Deneb	49 54.3	N 45 10.4			
03	141 24.7	231 52.4	.. 33.1	160 09.2	.. 53.1		291 22.5	.. 58.2	110 36.2	.. 49.0			Denebola	183 06.9	N 14 44.3			
04	156 27.1	246 51.4	33.2	175 09.9	52.4		306 24.7	58.4	125 38.7	49.0			Diphda	349 28.6	S 18 09.1			
05	171 29.6	261 50.4	33.3	190 10.6	51.6		321 26.8	58.5	140 41.2	49.0								
06	186 32.1	276 49.5	S 23 33.4	205 11.4	S 8 50.9		336 28.9	S 10 58.6	155 43.7	N 9 49.0			Dubhe	194 31.1	N 61 54.5			
07	201 34.5	291 48.5	33.5	220 12.1	50.1		351 31.0	58.7	170 46.2	49.0			Elath	278 53.7	N 28 35.2			
08	216 37.0	306 47.5	33.6	235 12.8	49.4		6 33.1	58.8	185 48.7	49.0			Elatanin	91 01.9	N 51 29.3			
S 09	231 39.5	321 46.6	.. 33.7	250 13.6	.. 48.6		21 35.2	.. 58.9	200 51.2	.. 49.0			Enif	34 19.5	N 9 44.2			
U 10	246 41.9	336 45.6	33.8	265 14.3	47.9		36 37.4	59.1	215 53.7	49.0			Fomalhaut	16 00.1	S 29 47.1			
N 11	261 44.4	351 44.6	33.9	280 15.0	47.1		51 39.5	59.2	230 56.2	49.0								
D 12	276 46.9	6 43.7	S 23 34.0	295 15.8	S 8 46.4		66 41.6	S 10 59.3	245 58.7	N 9 49.0			Gacrux	172 37.8	S 56 56.5			
A 13	291 49.3	21 42.7	34.1	310 16.5	45.7		81 43.7	59.4	261 01.2	49.0			Gienah	176 26.1	S 17 22.5			
Y 14	306 51.8	36 41.7	34.2	325 17.2	44.9		96 45.8	59.5	276 03.7	49.0			Hadar	149 35.1	S 60 13.6			
15	321 54.2	51 40.8	.. 34.3	340 18.0	.. 44.2		111 48.0	.. 59.6	291 06.2	.. 49.0			Hamal	328 37.7	N 23 19.5			
16	336 56.7	66 39.8	34.4	355 18.7	43.4		126 50.1	59.8	306 08.7	49.0			Kaus Aust.	84 27.6	S 34 24.2			
17	351 59.2	81 38.8	34.5	10 19.5	42.7		141 52.2	10 59.9	321 11.2	49.0								
18	7 01.6	96 37.9	S 23 34.6	25 20.2	S 8 41.9		156 54.3	S 11 00.0	336 13.7	N 9 49.0			Kochab	137 18.8	N 74 16.3			
19	22 04.1	111 36.9	34.7	40 20.9	41.2		171 56.4	00.1	351 16.2	49.0			Markab	14 11.1	N 15 02.7			
20	37 06.6	126 35.9	34.8	55 21.7	40.4		186 58.5	00.2	6 18.7	49.0			Menkar	314 49.1	N 3 58.5			
21	52 09.0	141 35.0	.. 34.8	70 22.4	.. 39.7		202 00.7	.. 00.4	21 21.1	.. 49.0			Menkent	148 46.6	S 36 13.3			
22	67 11.5	156 34.0	34.9	85 23.1	38.9		217 02.8	00.5	36 23.6	49.0			Miaplacidus	221 46.4	S 69 35.3			
23	82 14.0	171 33.0	35.0	100 23.9	38.2		232 04.9	00.6	51 26.1	49.0								
29 00	97 16.4	186 32.1	S 23 35.1	115 24.6	S 8 37.4		247 07.0	S 11 00.7	66 28.6	N 9 49.0			Mirfak	309 27.1	N 49 45.6			
01	112 18.9	201 31.1	35.2	130 25.3	36.7		262 09.1	00.8	81 31.1	49.0			Nunki	76 39.2	S 26 20.3			
02	127 21.3	216 30.1	35.3	145 26.1	35.9		277 11.3	00.9	96 33.6	49.0			Peacock	54 11.1	S 56 50.2			
03	142 23.8	231 29.1	.. 35.4	160 26.8	.. 35.2		292 13.4	.. 01.1	111 36.1	.. 49.0			Pollux	244 07.3	N 28 06.0			
04	157 26.3	246 28.2	35.4	175 27.5	34.4		307 15.5	01.2	126 38.6	49.0			Procyon	245 33.6	N 5 18.3			
05	172 28.7	261 27.2	35.5	190 28.3	33.7		322 17.6	01.3	141 41.1	49.0								
06	187 31.2	276 26.2	S 23 35.6	205 29.0	S 8 32.9		337 19.8	S 11 01.4	156 43.6	N 9 49.0			Rasalhague	96 37.2	N 12 34.7			
07	202 33.7	291 25.3	35.7	220 29.8	32.2		352 21.9	01.5	171 46.1	49.0			Regulus	208 18.1	N 12 06.8			
08	217 36.1	306 24.3	35.7	235 30.5	31.4		7 24.0	01.6	186 48.6	49.0			Rigel	281 43.2	S 8 14.0			
M 09	232 38.6	321 23.3	.. 35.8	250 31.2	.. 30.7		22 26.1	.. 01.7	201 51.1	.. 49.0			Rigel Kent.	140 37.1	S 60 42.5			
O 10	247 41.1	336 22.4	35.9	265 32.0	29.9		37 28.2	01.9	216 53.6	49.0			Sabik	102 50.5	S 15 41.5			
N 11	262 43.5	351 21.4	36.0	280 32.7	29.2		52 30.4	02.0	231 56.1	49.0								
D 12	277 46.0	6 20.4	S 23 36.0	295 33.4	S 8 28.4		67 32.5	S 11 02.1	246 58.6	N 9 49.0			Schedar	350 18.2	N 56 22.7			
A 13	292 48.5	21 19.5	36.1	310 34.2	27.7		82 34.6	02.2	262 01.0	49.0			Shaula	97 06.9	S 37 05.1			
Y 14	307 50.9	36 18.5	36.2	325 34.9	26.9		97 36.7	02.3	277 03.5	49.1			Sirius	259 02.3	S 16 40.3			
15	322 53.4	51 17.5	.. 36.2	340 35.7	.. 26.2		112 38.9	.. 02.4	292 06.0	.. 49.1			Spica	159 05.9	N 11 00.3			
16	337 55.8	66 16.5	36.3	355 36.4	25.4		127 41.0	02.6	307 08.5	49.1			Suhail	223 16.3	S 43 18.4			
17	352 58.3	81 15.6	36.4	10 37.1	24.7		142 43.1	02.7	322 11.0	49.1								
18	8 00.8	96 14.6	S 23 36.4	25 37.9	S 8 23.9		157 45.2	S 11 02.8	337 13.5	N 9 49.1			Vega	81 01.6	N 38 45.2			
19	23 03.2	111 13.6	36.5	40 38.6	23.2		172 47.3	02.9	352 16.0	49.1			Zuben'ubi	137 42.0	S 15 55.1			
20	38 05.7	126 12.7	36.5	55 39.3	22.4		187 49.5	03.0	7 18.5	49.1								
21	53 08.2	141 11.7																

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise								
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	27	28	29	30				
d	h	°	'	°	'	°	'	°	'	°	'	°	'	°	'	°	'	°	'	
27	00	179	47.2	S 23	20.9	321	22.9	13.9	N 20	15.2	10.3	54.0	N 72	08 27	10 53	■	16 12	19 10	21 19	23 19
	01	194	46.8		20.8	335	55.8	14.1	20	04.9	10.3	54.0	N 70	08 07	09 54	■	17 16	19 32	21 27	23 18
	02	209	46.5		20.7	350	28.9	14.0	19	54.6	10.4	54.0	68	07 51	09 20	■	17 51	19 48	21 34	23 18
	03	224	46.2	..	20.6	5	01.9	14.2	19	44.7	10.5	54.0	66	07 38	08 55	10 34	18 15	20 01	21 40	23 17
	04	239	45.9		20.5	19	35.1	14.2	19	33.7	10.6	54.0	64	07 27	08 35	09 53	18 35	20 12	21 45	23 17
	05	254	45.6		20.4	34	08.3	14.3	19	23.1	10.7	54.0	62	07 18	08 20	09 25	18 50	20 21	21 49	23 17
	06	269	45.3	S 23	20.3	48	41.6	14.3	N 19	12.4	10.7	54.0	60	07 10	08 06	09 03	19 03	20 29	21 53	23 17
	07	284	45.0		20.2	63	14.9	14.4	19	01.7	10.8	54.0	N 58	07 02	07 55	08 46	19 14	20 36	21 56	23 16
	08	299	44.7		20.1	77	48.3	14.5	18	50.9	10.9	54.0	56	06 55	07 44	08 32	19 24	20 42	21 59	23 16
	09	314	44.4	..	20.0	92	21.8	14.5	18	40.0	11.0	54.0	54	06 49	07 35	08 19	19 32	20 47	22 02	23 16
	10	329	44.1		19.9	106	55.3	14.6	18	29.0	11.0	54.0	52	06 44	07 27	08 08	19 40	20 52	22 04	23 16
	11	344	43.8		19.8	121	28.9	14.7	18	18.0	11.2	54.0	50	06 38	07 20	07 58	19 47	20 57	22 06	23 16
	12	359	43.5	S 23	19.7	136	02.6	14.7	N 18	06.8	11.1	54.0	45	06 27	07 04	07 38	20 01	21 06	22 11	23 15
	13	14	43.2		19.6	150	36.3	14.7	17	55.7	11.3	54.0	N 40	06 16	06 51	07 21	20 13	21 14	22 14	23 15
	14	29	42.9		19.5	165	10.0	14.9	17	44.4	11.3	54.1	35	06 07	06 39	07 07	20 23	21 21	22 18	23 15
	15	44	42.5	..	19.4	179	43.9	14.9	17	33.1	11.4	54.1	30	05 59	06 28	06 54	20 32	21 27	22 21	23 15
	16	59	42.2		19.2	194	17.8	14.9	17	21.7	11.5	54.1	20	05 42	06 10	06 34	20 47	21 37	22 26	23 14
17	74	41.9		19.1	208	51.7	15.0	17	10.2	11.5	54.1	N 10	05 26	05 52	06 15	21 00	21 45	22 30	23 14	
18	89	41.6	S 23	19.0	223	25.7	15.1	N 16	58.7	11.6	54.1	0	05 09	05 35	05 58	21 12	21 54	22 34	23 14	
19	104	41.3		18.9	237	59.8	15.1	16	47.1	11.7	54.1	S 10	04 50	05 17	05 40	21 24	22 02	22 38	23 14	
20	119	41.0		18.8	252	33.9	15.1	16	35.4	11.7	54.1	20	04 28	04 57	05 22	21 37	22 11	22 42	23 14	
21	134	40.7	..	18.7	267	08.0	15.2	16	23.7	11.8	54.1	30	03 59	04 32	04 59	21 52	22 21	22 47	23 13	
22	149	40.4		18.6	281	42.2	15.3	16	11.9	11.9	54.1	35	03 40	04 17	04 47	22 01	22 26	22 50	23 13	
23	164	40.1		18.5	296	16.5	15.3	16	00.0	11.9	54.1	40	03 17	03 59	04 32	22 10	22 33	22 53	23 13	
												45	02 47	03 36	04 14	22 22	22 40	22 57	23 13	
28	00	179	39.8	S 23	18.3	310	50.8	15.4	N 15	48.1	12.0	54.1	S 50	02 02	03 07	03 51	22 35	22 49	23 01	23 13
	01	194	39.5		18.2	325	25.2	15.4	15	36.1	12.1	54.1	52	01 34	02 52	03 40	22 42	22 53	23 03	23 13
	02	209	39.2		18.1	339	59.6	15.5	15	24.0	12.1	54.1	54	00 50	02 34	03 28	22 48	22 58	23 05	23 13
	03	224	38.9	..	18.0	354	34.1	15.5	15	11.9	12.1	54.1	56	///	02 12	03 14	22 56	23 03	23 08	23 13
	04	239	38.6		17.9	9	08.6	15.6	14	59.8	12.3	54.1	58	///	01 43	02 57	23 05	23 08	23 10	23 12
	05	254	38.3		17.7	23	43.2	15.6	14	47.5	12.3	54.1	S 60	///	00 54	02 37	23 15	23 14	23 13	23 12
	06	269	38.0	S 23	17.6	38	17.8	15.6	N 14	35.2	12.3	54.1								
	07	284	37.6		17.5	52	52.4	15.8	14	22.9	12.4	54.2								
	08	299	37.3		17.4	67	27.2	15.7	14	10.5	12.5	54.2								
	09	314	37.0	..	17.3	82	01.9	15.8	13	58.0	12.5	54.2								
	10	329	36.7		17.1	96	36.7	15.8	13	45.5	12.6	54.2								
	11	344	36.4		17.0	111	11.5	15.9	13	32.9	12.6	54.2								
	12	359	36.1	S 23	16.9	125	46.4	15.9	N 13	20.3	12.7	54.2								
	13	14	35.8		16.8	140	21.3	16.0	13	07.6	12.7	54.2								
	14	29	35.5		16.6	154	56.3	16.0	12	54.9	12.8	54.2								
	15	44	35.2	..	16.5	169	31.3	16.0	12	42.1	12.8	54.2								
	16	59	34.9		16.4	184	06.3	16.1	12	29.3	12.9	54.2								
17	74	34.6		16.2	198	41.4	16.1	12	16.4	12.9	54.3									
18	89	34.3	S 23	16.1	213	16.5	16.2	N 12	03.5	13.0	54.3									
19	104	34.0		16.0	227	57.1	16.1	11	50.5	13.0	54.3	N 58	15 17	16 09	17 01	11 01	11 05	11 08	11 10	
20	119	33.7		15.8	242	26.8	16.3	11	37.5	13.1	54.3	56	15 32	16 19	17 08	10 51	10 58	11 04	11 09	
21	134	33.4	..	15.7	257	02.1	16.2	11	24.4	13.1	54.3	54	15 44	16 28	17 14	10 42	10 52	11 00	11 08	
22	149	33.1		15.6	271	37.3	16.3	11	11.3	13.2	54.3	52	15 55	16 36	17 20	10 33	10 46	10 57	11 07	
23	164	32.8		15.4	286	12.6	16.3	10	58.1	13.2	54.3	50	16 05	16 43	17 25	10 26	10 41	10 54	11 06	
												45	16 25	16 59	17 36	10 10	10 30	10 48	11 04	
29	00	179	32.5	S 23	15.3	300	47.9	16.3	N 10	44.9	13.3	54.3	N 40	16 42	17 13	17 47	09 57	10 21	10 42	11 02
	01	194	32.1		15.2	315	25.2	16.4	10	31.6	13.3	54.4	35	16 56	17 24	17 56	09 46	10 13	10 37	11 01
	02	209	31.8		15.0	329	58.6	16.4	10	18.3	13.3	54.4	30	17 09	17 35	18 05	09 36	10 06	10 33	10 59
	03	224	31.5	..	14.9	344	34.0	16.4	10	05.0	13.4	54.4	20	17 30	17 54	18 21	09 19	09 53	10 26	10 57
	04	239	31.2		14.8	359	09.4	16.5	9	51.6	13.4	54.4	N 10	17 48	18 11	18 37	09 04	09 43	10 19	10 55
	05	254	30.9		14.6	13	44.9	16.4	9	38.2	13.5	54.4	0	18 05	18 28	18 54	08 50	09 32	10 13	10 53
	06	269	30.6	S 23	14.5	28	20.3	16.5	N 9	24.7	13.5	54.4	S 10	18 23	18 46	19 13	08 36	09 22	10 07	10 51
	07	284	30.3		14.3	42	55.8	16.6	9	11.2	13.6	54.4	20	18 42	19 06	19 35	08 21	09 11	10 00	10 49
	08	299	30.0		14.2	57	31.3	16.6	8	57.6	13.5	54.4	30	19 04	19 31	20 04	08 03	08 58	09 53	10 47
	09	314	29.7	..	14.0	72	06.9	16.5	8	44.1	13.7	54.5	35	19 16	19 46	20 23	07 53	08 51	09 48	10 45
	10	329	29.4		13.9	86	42.4	16.6	8	30.4	13.6	54.5	40	19 31	20 04	20 46	07 41	08 42	09 43	10 44
	11	344	29.1		13.8	101	18.0	16.6	8	16.8	13.7	54.5	45	19 49	20 27	21 16	07 27	08 33	09 37	10 42
	12	359	28.8	S 23	13.6	115	53.6	16.6	N 8	03.1	13.8	54.5	S 50	20 12	20 56	22 01	07 10	08 20	09 30	10 39
	13	14	28.5		13.5	130	29.2	16.6	7	49.3	13.7	54.5	52	20 22	21 11	22 28	07 02	08 15	09 27	10 38
	14	29	28.2		13.3	145	04.8	16.7	7	35.6	13.9	54.5	54	20 34	21 29	23 12	06 53	08 09	09 23	10 37
	15	44	27.9	..	13.2	159	40.5	16.6	7	21.7	13.8	54.6	56	20 49	21 50	///	06 42	08 02	09 19	10 36
	16	59	27.6		13.0	174	16.1	16.7	7	07.9	13.9	54.6	58	21 05	22 20	///	06 31	07 54	09 15	10 35
17	74	27.3		12.9	188	51.8	16.7	6	54.0	13.9	54.6	S 60	21 25	23 07	///	06 17	07 45	09 10	10 33	
18	89	27.0	S 23	12.7	203	27.5	16.7	N 6	40.1	13.9	54.6									
19	104	26.7		12.6	218	03.2	16.7	6	26.2	14.0	54.6									
20	119	26.4		12.4	232	38.9	16.7	6	12.2	14.0	54.6									
21	134	26.1	..	12.3	247	14.6	16.7	5	58.2	14.0	54.7									
22	149	25.8		12.1	261	50.3	16.7	5	44.2	14.1	54.7			</						

		ARIES			VENUS -3.4			MARS +1.0			JUPITER -1.5			SATURN +0.4			STARS		
G.M.T.		G.H.A.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	G.H.A.	Dec.	Name	S.H.A.	Dec.				
d	h	°	'	"	°	'	°	'	°	'	°	'		°	'				
TUESDAY	00	98 15.6	186 08.8	S 23 36.8	115 42.3	S 8 19.4	247 58.0	S 11 03.5	67 28.4	N 9 49.1	Acamar	315 42.8	S 40 25.5						
	01	113 18.0	201 07.8	36.8	130 43.0	18.7	263 00.1	03.6	82 30.9	49.1	Achernar	335 50.6	S 57 23.5						
	02	128 20.5	216 06.8	36.9	145 43.8	17.9	278 02.2	03.7	97 33.4	49.1	Acrux	173 46.3	S 62 55.7						
	03	143 23.0	231 05.9	.. 36.9	160 44.5	.. 17.2	293 04.3	.. 03.8	112 35.9	.. 49.1	Adhara	255 37.9	S 28 55.7						
	04	158 25.4	246 04.9	37.0	175 45.3	16.4	308 06.5	03.9	127 38.4	49.1	Aldebaran	291 26.7	N 16 27.2						
	05	173 27.9	261 03.9	37.0	190 46.0	15.7	323 08.6	04.0	142 40.9	49.1									
	06	188 30.3	276 03.0	S 23 37.1	205 46.7	S 8 14.9	338 10.7	S 11 04.2	157 43.4	N 9 49.1	Alioth	166 49.1	N 56 07.0						
	07	203 32.8	291 02.0	37.1	220 47.5	14.2	353 12.8	04.3	172 45.9	49.1	Alkaid	153 24.6	N 49 27.4						
	08	218 35.3	306 01.0	37.1	235 48.2	13.4	8 15.0	04.4	187 48.4	49.1	Al Na'ir	28 24.9	S 47 06.7						
	09	233 37.7	321 00.1	.. 37.2	250 48.9	.. 12.7	23 17.1	.. 04.5	202 50.8	.. 49.1	Alnilam	276 19.3	S 1 13.1						
	10	248 40.2	335 59.1	37.2	265 49.7	11.9	38 19.2	04.6	217 53.3	49.1	Alphard	218 28.0	S 8 31.6						
	11	263 42.7	350 58.1	37.3	280 50.4	11.2	53 21.4	04.7	232 55.8	49.1									
	12	278 45.1	5 57.1	S 23 37.3	295 51.2	S 8 10.4	68 23.5	S 11 04.8	247 58.3	N 9 49.1	Alphecca	126 38.9	N 26 48.6						
	13	293 47.6	20 56.2	37.3	310 51.9	09.7	83 25.6	05.0	263 00.8	49.1	Alpheratz	358 17.6	N 28 55.7						
	14	308 50.1	35 55.2	37.4	325 52.6	08.9	98 27.7	05.1	278 03.3	49.1	Altair	62 40.5	N 8 47.2						
	15	323 52.5	50 54.2	.. 37.4	340 53.4	.. 08.2	113 29.9	.. 05.2	293 05.8	.. 49.1	Ankaa	353 47.8	S 42 28.3						
	16	338 55.0	65 53.3	37.4	355 54.1	07.4	128 32.0	05.3	308 08.3	49.1	Antares	113 06.8	S 26 22.1						
	17	353 57.4	80 52.3	37.5	10 54.9	06.7	143 34.1	05.4	323 10.7	49.2									
	18	8 59.9	95 51.3	S 23 37.5	25 55.6	S 8 05.9	158 36.2	S 11 05.5	338 13.2	N 9 49.2	Arcturus	146 25.7	N 19 20.1						
	19	24 02.4	110 50.3	37.5	40 56.3	05.2	173 38.4	05.6	353 15.7	49.2	Atria	108 38.7	S 68 58.5						
	20	39 04.8	125 49.4	37.6	55 57.1	04.4	188 40.5	05.7	8 18.2	49.2	Avior	234 31.0	S 59 24.5						
	21	54 07.3	140 48.4	.. 37.6	70 57.8	.. 03.7	203 42.6	.. 05.9	23 20.7	.. 49.2	Bellatrix	279 06.8	N 6 19.6						
	22	69 09.8	155 47.4	37.6	85 58.6	02.9	218 44.8	06.0	38 23.2	49.2	Betelgeuse	271 36.4	N 7 24.3						
	23	84 12.2	170 46.5	37.6	100 59.3	02.2	233 46.9	06.1	53 25.7	49.2									
WEDNESDAY	00	99 14.7	185 45.5	S 23 37.7	116 00.0	S 8 01.4	248 49.0	S 11 06.2	68 28.2	N 9 49.2	Canopus	264 10.1	S 52 40.6						
	01	114 17.2	200 44.5	37.7	131 00.8	8 00.7	263 51.1	06.3	83 30.6	49.2	Capella	281 22.4	N 45 58.3						
	02	129 19.6	215 43.5	37.7	146 01.5	7 59.9	278 53.3	06.4	98 33.1	49.2	Deneb	49 54.3	N 45 10.4						
	03	144 22.1	230 42.6	.. 37.7	161 02.3	.. 59.2	293 55.4	.. 06.5	113 35.6	.. 49.2	Denebola	183 06.9	N 14 44.2						
	04	159 24.5	245 41.6	37.8	176 03.0	58.4	308 57.5	06.7	128 38.1	49.2	Diphda	349 28.6	S 18 09.1						
	05	174 27.0	260 40.6	37.8	191 03.8	57.6	323 59.7	06.8	143 40.6	49.2									
	06	189 29.5	275 39.7	S 23 37.8	206 04.5	S 7 56.9	339 01.8	S 11 06.9	158 43.1	N 9 49.2	Dubhe	194 31.0	N 61 54.5						
	07	204 31.9	290 38.7	37.8	221 05.2	56.1	354 03.9	07.0	173 45.5	49.2	Elmath	278 53.7	N 28 35.2						
	08	219 34.4	305 37.7	37.8	236 06.0	55.4	9 06.1	07.1	188 48.0	49.2	Eltanin	91 01.9	N 51 29.3						
	09	234 36.9	320 36.7	.. 37.8	251 06.7	.. 54.6	24 08.2	.. 07.2	203 50.5	.. 49.2	Enif	34 19.5	N 9 44.2						
	10	249 39.3	335 35.8	37.8	266 07.5	53.9	39 10.3	07.3	218 53.0	49.2	Fomalhaut	16 00.1	S 29 47.1						
	11	264 41.8	350 34.8	37.8	281 08.2	53.1	54 12.5	07.4	233 55.5	49.2									
	12	279 44.3	5 33.8	S 23 37.9	296 08.9	S 7 52.4	69 14.6	S 11 07.5	248 58.0	N 9 49.3	Gacrux	172 37.8	S 56 56.5						
	13	294 46.7	20 32.9	37.9	311 09.7	51.6	84 16.7	07.7	264 00.4	49.3	Gienah	176 26.0	S 17 22.5						
	14	309 49.2	35 31.9	37.9	326 10.4	50.9	99 18.9	07.8	279 02.9	49.3	Hadar	149 35.0	S 60 13.6						
	15	324 51.7	50 30.9	.. 37.9	341 11.2	.. 50.1	114 21.0	.. 07.9	294 05.4	.. 49.3	Hamal	328 37.7	N 23 19.5						
	16	339 54.1	65 29.9	37.9	356 11.9	49.4	129 23.1	08.0	309 07.9	49.3	Kaus Aust.	84 27.6	S 34 24.2						
	17	354 56.6	80 29.0	37.9	11 12.7	48.6	144 25.3	08.1	324 10.4	49.3									
	18	9 59.0	95 28.0	S 23 37.9	26 13.4	S 7 47.8	159 27.4	S 11 08.2	339 12.9	N 9 49.3	Kochab	137 18.7	N 74 16.3						
	19	25 01.5	110 27.0	37.9	41 14.1	47.1	174 29.5	08.3	354 15.3	49.3	Markab	14 11.1	N 15 02.7						
	20	40 04.0	125 26.1	37.9	56 14.9	46.3	189 31.6	08.4	9 17.8	49.3	Menkar	314 49.1	N 3 58.5						
	21	55 06.4	140 25.1	.. 37.9	71 15.6	.. 45.6	204 33.8	.. 08.5	24 20.3	.. 49.3	Menkent	148 46.5	S 36 13.3						
	22	70 08.9	155 24.1	37.9	86 16.4	44.8	219 35.9	08.7	39 22.8	49.3	Miaplacidus	221 46.3	S 69 35.3						
	23	85 11.4	170 23.1	37.9	101 17.1	44.1	234 38.1	08.8	54 25.3	49.3									
THURSDAY	00	100 13.8	185 22.2	S 23 37.9	116 17.9	S 7 43.3	249 40.2	S 11 08.9	69 27.8	N 9 49.3	Mirfak	309 27.1	N 49 45.6						
	01	115 16.3	200 21.2	37.9	131 18.6	42.6	264 42.3	09.0	84 30.2	49.3	Nunki	76 39.2	S 26 20.3						
	02	130 18.8	215 20.2	37.8	146 19.3	41.8	279 44.5	09.1	99 32.7	49.3	Peacock	54 11.1	S 56 50.2						
	03	145 21.2	230 19.3	.. 37.8	161 20.1	.. 41.0	294 46.6	.. 09.2	114 35.2	.. 49.4	Pollux	244 07.3	N 28 06.0						
	04	160 23.7	245 18.3	37.8	176 20.8	40.3	309 48.7	09.3	129 37.7	49.4	Procyon	245 33.6	N 5 18.3						
	05	175 26.2	260 17.3	37.8	191 21.6	39.5	324 50.9	09.4	144 40.2	49.4									
	06	190 28.6	275 16.4	S 23 37.8	206 22.3	S 7 38.8	339 53.0	S 11 09.5	159 42.6	N 9 49.4	Rasalhague	96 37.2	N 12 34.7						
	07	205 31.1	290 15.4	37.8	221 23.1	38.0	354 55.1	09.7	174 45.1	49.4	Regulus	208 18.0	N 12 06.8						
	08	220 33.5	305 14.4	37.8	236 23.8	37.3	9 57.3	09.8	189 47.6	49.4	Rigel	281 43.2	S 8 14.0						
	09	235 36.0	320 13.4	.. 37.7	251 24.6	.. 36.5	24 59.4	.. 09.9	204 50.1	.. 49.4	Rigel Kent.	140 37.0	S 60 42.5						
	10	250 38.5	335 12.5	37.7	266 25.3	35.8	40 01.5	10.0	219 52.6	49.4	Sabik	102 50.4	S 15 41.5						
	11	265 40.9	350 11.5	37.7	281 26.0	35.0	55 03.7	10.1	234 55.0	49.4									
	12	280 43.4	5 10.5	S 23 37.7	296 26.8	S 7 34.2	70 05.8	S 11 10.2	249 57.5	N 9 49.4	Schedar	350 18.2	N 56 22.7						
	13	295 45.9	20 09.6	37.7	311 27.5	33.5	85 07.9	10.3	265 00.0	49.4	Shaula	97 06.8	S 37 05.1						
	14	310 48.3	35 08.6	37.6	326 28.3	32.7	100 10.1	10.4	280 02.5	49.4	Sirius	259 02.3	S 16 40.3						
	15	325 50.8	50 07.6	.. 37.6	341 29.0	.. 32.0	115 12.2	.. 10.5	295 05.0	.. 49.4	Spica	159 05.9	S 11 00.3						
	16	340 53.3	65 06.6	37.6	356 29.8	31.2	130 14.4	10.6	310 07.4	49.4	Suhail	223 16.3	S 43 18.4						
	17	355 55.7	80 05.7	37.5	11 30.5	30.5	145 16.5	10.7	325 09.9	49.5									
	18	10 58.2	95 04.7	S 23 37.5	26 31.3	S 7 29.7	160 18.6	S 11 10.9	340 12.4	N 9 49.5	Vega	81 01.6	N 38 45.1						
	19	26 00.7	110 03.7	37.5	41 32.0	28.9	175 20.8	11.0	355 14.9	49.5	Zuben'ubi	137 41.9	S 15 55.1						
	20	41 03.1	125 02.8	37.5	56 32.7	28.2	190 22.9	11.1	10 17.3	49.5									
	21	56 05.6	140 01.8	.. 37.4	71 33.5	.. 27.4	205 25.0	.. 11.2	25 19.8	.. 49.5									
	22	71 08.0	155 00.8	37.4	86 34.2	26.7	220 27.2	11.3	40 22.3	49.5	Venus	86 30.8	11 38 m						
	23	86 10.5	169 59.8	37.3	101 35.0	25.9	235 29.3	11.4	55 24.8	49.5	Mars	16 45.3	16 15 m						
Mer. Pass. 17 20.2		v -1.0	d 0.0	v 0.7	d 0.8	v 2.1	d 0.1	v 2.5	d 0.0	Jupiter	149 34.3	7 24 m							
										Saturn	329 13.5	19 23 m							

G.M.T.		SUN		MOON				Lat.	Twilight		Sun-rise	Moonrise					
		G.H.A.	Dec.	G.H.A.	<i>v</i>	Dec.	<i>d</i>		H.P.	Naut.		Civil	30	31	1	2	
d	h	°	'	°	'	°	'	'	°	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>
30 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23	TUESDAY	179 25.2	S 23 11.8	291 01.7	16.8	N	5 16.0	14.1	54.7	N 72	08 25	10 46	■	23 19	25 23	01 23	03 47
		194 24.9	11.6	305 37.5	16.7	5 01.9	14.2	54.7	68	07 50	09 51	■	23 18	25 13	01 13	03 21	
		209 24.6	11.5	320 13.2	16.7	4 47.7	14.1	54.7	66	07 38	08 54	10 30	23 17	24 58	00 58	02 46	
		224 24.3	11.3	334 48.9	16.7	4 33.6	14.2	54.8	64	07 27	08 35	09 51	23 17	24 52	00 52	02 33	
		239 24.0	11.2	349 24.6	16.8	4 19.4	14.2	54.8	62	07 18	08 19	09 24	23 17	24 47	00 47	02 23	
		254 23.7	11.0	4 00.4	16.7	4 05.2	14.3	54.8	60	07 10	08 06	09 03	23 17	24 43	00 43	02 14	
		269 23.4	S 23 10.9	18 36.1	16.7	N	3 50.9	14.3	54.8	N 58	07 02	07 55	08 46	23 16	24 39	00 39	02 06
		284 23.1	10.7	33 11.8	16.7	3 36.6	14.3	54.8	56	06 56	07 44	08 32	23 16	24 35	00 35	01 59	
		299 22.8	10.5	47 47.5	16.8	3 22.3	14.3	54.9	54	06 50	07 36	08 19	23 16	24 32	00 32	01 53	
		314 22.5	10.4	62 23.3	16.7	3 08.0	14.3	54.9	52	06 44	07 28	08 08	23 16	24 30	00 30	01 47	
		329 22.2	10.2	76 59.0	16.7	2 53.7	14.4	54.9	50	06 39	07 20	07 59	23 16	24 27	00 27	01 42	
		344 21.9	10.0	91 34.7	16.6	2 39.3	14.4	54.9	45	06 27	07 05	07 38	23 15	24 22	00 22	01 32	
		359 21.6	S 23 09.9	106 10.3	16.7	N	2 24.9	14.4	55.0	N 40	06 17	06 51	07 22	23 15	24 18	00 18	01 23
		14 21.3	09.7	120 46.0	16.7	2 10.5	14.4	55.0	35	06 08	06 40	07 08	23 15	24 14	00 14	01 15	
		29 21.0	09.5	135 21.7	16.6	1 56.1	14.4	55.0	30	06 00	06 29	06 55	23 15	24 10	00 10	01 09	
		44 20.7	09.4	149 57.3	16.7	1 41.7	14.5	55.0	20	05 43	06 11	06 35	23 14	24 05	00 05	00 58	
		59 20.4	09.2	164 33.0	16.6	1 27.2	14.5	55.1	N 10	05 27	05 54	06 16	23 14	24 00	00 00	00 48	
		74 20.1	09.0	179 08.6	16.6	1 12.7	14.5	55.1	0	05 11	05 37	05 59	23 14	23 55	24 39	00 39	
		89 19.8	S 23 08.9	193 44.2	16.6	N	0 58.2	14.5	55.1	S 10	04 52	05 19	05 42	23 14	23 51	24 30	00 30
		104 19.5	08.7	208 19.8	16.5	0 43.7	14.5	55.1	20	04 30	04 59	05 23	23 14	23 46	24 20	00 20	
		119 19.2	08.5	222 55.3	16.6	0 29.2	14.5	55.1	30	04 01	04 34	05 01	23 13	23 40	24 09	00 09	
		134 18.9	08.4	237 30.9	16.5	0 14.7	14.6	55.2	35	03 43	04 19	04 49	23 13	23 37	24 03	00 03	
		149 18.6	08.2	252 06.4	16.5	N	0 00.1	14.6	55.2	40	03 20	04 01	04 34	23 13	23 34	23 56	24 10
		164 18.3	08.0	266 41.9	16.5	S	0 14.4	14.6	55.2	45	02 50	03 39	04 16	23 13	23 30	23 48	24 22
179 18.0	S 23 07.8	281 17.4	16.4	S	0 29.0	14.6	55.2	S 50	02 05	03 10	03 54	23 13	23 25	23 38	23 55		
194 17.7	07.7	295 52.8	16.5	0 43.6	14.6	55.3	52	01 39	02 55	03 43	23 13	23 23	23 34	23 48			
209 17.4	07.5	310 28.3	16.4	0 58.2	14.6	55.3	54	00 57	02 37	03 31	23 13	23 20	23 29	23 40			
224 17.1	07.3	325 03.7	16.3	1 12.8	14.6	55.3	56	///	02 16	03 17	23 13	23 18	23 24	23 32			
239 16.8	07.1	339 39.0	16.3	1 27.4	14.6	55.4	58	///	01 47	03 01	23 12	23 15	23 18	23 22			
254 16.5	06.9	354 14.3	16.3	1 42.0	14.7	55.4	S 60	///	01 02	02 41	23 12	23 11	23 11	23 11			
269 16.2	S 23 06.8	8 49.6	16.3	S	1 56.7	14.6	55.4										
284 15.9	06.6	23 24.9	16.2	2 11.3	14.7	55.4											
299 15.6	06.4	38 00.1	16.2	2 26.0	14.6	55.5											
314 15.3	06.2	52 35.3	16.2	2 40.6	14.7	55.5											
329 15.0	06.0	67 10.5	16.1	2 55.3	14.6	55.5											
344 14.7	05.9	81 45.6	16.1	3 09.9	14.7	55.5											
359 14.4	S 23 05.7	96 20.7	16.0	S	3 24.6	14.6	55.6										
14 14.1	05.5	110 55.7	16.0	3 39.2	14.7	55.6											
29 13.8	05.3	125 30.7	16.0	3 53.9	14.7	55.6											
44 13.5	05.1	140 05.7	15.9	4 08.6	14.6	55.7											
59 13.2	04.9	154 40.6	15.8	4 23.2	14.7	55.7											
74 12.9	04.7	169 15.4	15.8	4 37.9	14.6	55.7											
89 12.6	S 23 04.6	183 50.2	15.8	S	4 52.5	14.7	55.7										
104 12.3	04.4	198 25.0	15.7	5 07.2	14.6	55.8											
119 12.0	04.2	212 59.7	15.6	5 21.8	14.7	55.8											
134 11.7	04.0	227 34.3	15.6	5 36.5	14.6	55.8											
149 11.4	03.8	242 08.9	15.6	5 51.1	14.7	55.9											
164 11.1	03.6	256 43.5	15.5	6 05.8	14.6	55.9											
179 10.8	S 23 03.4	271 18.0	15.4	S	6 20.4	14.6	55.9										
194 10.5	03.2	285 52.4	15.4	6 35.0	14.6	56.0											
209 10.2	03.0	300 26.8	15.3	6 49.6	14.6	56.0											
224 9.9	02.8	315 01.1	15.2	7 04.2	14.6	56.0											
239 9.6	02.6	329 35.3	15.2	7 18.8	14.6	56.1											
254 9.3	02.4	344 09.5	15.1	7 33.4	14.5	56.1											
269 9.0	S 23 02.2	358 43.6	15.1	S	7 47.9	14.6	56.1										
284 08.7	02.0	13 17.7	14.9	8 02.5	14.5	56.2											
299 08.4	01.8	27 51.6	14.9	8 17.0	14.5	56.2											
314 08.1	01.6	42 25.5	14.9	8 31.5	14.5	56.2											
329 07.8	01.4	56 59.4	14.8	8 46.0	14.5	56.3											
344 07.5	01.2	71 33.2	14.6	9 00.5	14.5	56.3											
359 07.2	S 23 01.0	86 06.8	14.7	S	9 15.0	14.4	56.3										
14 06.9	00.8	100 40.5	14.5	9 29.4	14.4	56.4											
29 06.6	00.6	115 14.0	14.5	9 43.8	14.4	56.4											
44 06.3	00.4	129 47.5	14.4	9 58.2	14.4	56.4											
59 06.0	00.2	144 20.9	14.3	10 12.6	14.4	56.5											
74 05.7	23 00.0	158 54.2	14.2	10 27.0	14.3	56.5											
89 05.5	S 22 59.8	173 27.4	14.1	S	10 41.3	14.3	56.5										
104 05.2	59.6	188 00.5	14.1	10 55.6	14.3	56.6											
119 04.9	59.4	202 33.6	13.9	11 09.9	14.2	56.6											
134 04.6	59.2	217 06.5	13.9	11 24.1	14.2	56.6											
149 04.3	58.9	231 39.4	13.8	11 38.3	14.2	56.7											
164 04.0	58.7	246 12.2	13.7	11 52.5	14.1	56.7											
S.D. 16.3		<i>d</i>	0.2	S.D.	15.0	15.1	15.3										
Day		SUN			MOON												
		Eqn. of 00 ^h	TIME 12 ^h	Mer. Pass.	Mer. Upper	Pass. Lower	Age	Phase									
30		m s	m s	h m	h m	h m	d										
31		02 19	02 33	12 03	04 44	17 04	21										
1		02 48	03 02	12 03	05 24	17 44	22										
		03 16	03 30	12 04	06 05	18 27	23										

EXPLANATION

PRINCIPLE AND ARRANGEMENT

1. *Object.* The object of this Almanac is to provide, in a convenient form, the data required for the practice of astronomical navigation at sea.

2. *Principle.* The main contents of the Almanac consist of data from which the *Greenwich Hour Angle* (G.H.A.) and the *Declination* (Dec.) of all the bodies used for navigation can be obtained for any instant of *Greenwich Mean Time* (G.M.T.). The *Local Hour Angle* (L.H.A.) can then be obtained by means of the formula :

$$\text{L.H.A.} = \text{G.H.A.} \begin{array}{l} - \text{west} \\ + \text{east} \end{array} \text{ longitude}$$

The remaining data consist of: times of rising and setting of the Sun and Moon, and times of twilight; miscellaneous calendarial and planning data and auxiliary tables, including lists of Standard Times; corrections to be applied to observed altitude.

For the Sun, Moon, and planets the G.H.A. and Dec. are tabulated directly for each hour of G.M.T. throughout the year. For the stars the *Sidereal Hour Angle* (S.H.A.) is given, and the G.H.A. is obtained from:

$$\text{G.H.A. Star} = \text{G.H.A. Aries} + \text{S.H.A. Star}$$

The S.H.A. and Dec. of the stars change slowly and may be regarded as constant over periods of several days. G.H.A. Aries, or the Greenwich Hour Angle of the first point of Aries (the Vernal Equinox), is tabulated for each hour. Permanent tables give the appropriate increments and corrections to the tabulated hourly values of G.H.A. and Dec. for the minutes and seconds of G.M.T.

The tabular accuracy is 0'·1 throughout.

3. *Lay-out.* The ephemeral data for three days are presented on an opening of two pages: the left-hand page contains the data for the planets and stars; the right-hand page contains the data for the Sun and Moon, together with times of twilight, sunrise, sunset, moonrise, and moonset.

The remaining contents are arranged as follows: for ease of reference the altitude-correction tables are given on the inside front and back covers and facing pages; calendar, Moon's phases, eclipses, and planet notes (i.e. data of general interest) precede the main tabulations; the other data follow the main tabulations and are arranged, as far as possible, in order of importance or frequency of use backwards from the inside back cover.

MAIN DATA

4. *Daily pages.* The daily pages give the G.H.A. of Aries, the G.H.A. and Dec. of the Sun, Moon, and the four navigational planets, for each hour of G.M.T. For the Moon, values of v and d are also tabulated for each hour to facilitate the correction of G.H.A. and Dec. to intermediate times; v and d for the Sun and planets change so slowly that they are given, at the foot of the appropriate columns, once only on the page; v is zero for Aries and negligible for the Sun, and is omitted. The S.H.A. and Dec. of the 57 selected stars, arranged in alphabetical order of proper name, are also given.

5. *Stars.* The S.H.A. and Dec. of 173 stars, including the 57 selected stars, are tabulated for each month on pages 268–273; no interpolation is required and the data can be used in precisely the same way as those for the selected stars on the daily pages. The stars are arranged in order of S.H.A.

The list of 173 includes all stars down to magnitude 3.0, together with a few fainter ones to fill the larger gaps. The 57 selected stars have been chosen from amongst these on account of brightness and distribution in the sky; they will suffice for the majority of observations.

The 57 selected stars are known by their proper names, but they are also numbered in descending order of S.H.A. In the list of 173 stars, the constellation names are always given on the left-hand page; on the facing page proper names are given where well-known names exist. Numbers for the selected stars are given in both columns.

Stars which, owing to their declinations, are unsuitable for use with the *Tables of Computed Altitude and Azimuth* (H.O. 214 or H.D. 486) are specially indicated.

An index to the selected stars, containing lists in both alphabetical and numerical order, is given on page xxxiii and is also reprinted on the bookmark.

6. *Increments and corrections.* These tables, printed on tinted paper (pages ii–xxxi) at the back of the Almanac, provide the increments and corrections for minutes and seconds to be applied to the hourly values of G.H.A. and Dec. They consist of sixty tables, one for each minute, separated into two parts: increments to G.H.A. for Sun and planets, Aries, and Moon for every minute and second; and, for each minute, corrections to be applied to G.H.A. and Dec. corresponding to the values of v and d given on the daily pages.

The increments are based on the following adopted hourly rates of increase of the G.H.A.: Sun and planets, 15° precisely; Aries, $15^\circ 02' 46''$; Moon, $14^\circ 19' 0''$. The values of v on the daily pages are the excesses of the actual hourly motions over the adopted values; they are generally positive, except for Venus. The tabulated hourly values of the Sun's G.H.A. have been adjusted to reduce to a minimum the error caused by treating v as negligible. The values of d on the daily pages are the hourly differences of the Dec. For the Moon, the true values of v and d are given for each hour; otherwise mean values are given for the three days on the page.

7. *Method of entry.* The G.M.T. of an observation is expressed as a day and hour, followed by a number of minutes and seconds. The tabular values of G.H.A. and Dec., and where necessary the corresponding values of v and d , are taken directly from the daily pages for the day and hour of G.M.T.; this hour is always *before* the time of observation. S.H.A. and Dec. of the selected stars are also taken from the daily pages.

The table of Increments and Corrections for the minute of G.M.T. is then selected. For the G.H.A., the increment for minutes and seconds is taken from the appropriate column opposite the seconds of G.M.T.; the v -correction is taken from the second part of the same table opposite the value of v as given on the daily pages. Both increment and v -correction are to be added to the G.H.A., except for Venus when v is prefixed by a

minus sign and the v -correction is to be subtracted. For the Dec. there is no increment, but a d -correction is applied in the same way as the v -correction; d is given without sign on the daily pages and the sign of the correction is to be supplied by inspection of the Dec. column. In many cases the correction may be applied mentally.

8. *Examples.* (a) Sun and Moon. Required the G.H.A. and Dec. of the Sun and Moon on 1969 January 22 at G.M.T. $15^h 47^m 13^s$.

SUN				MOON			
	G.H.A.	Dec.	d	G.H.A.	v	Dec.	d
Daily page, Jan. 22 ^d 15 ^h	42° 04'·5	S.19° 37'·4	0'·6	346° 05'·4	14'·4	N.0° 10'·2	15'·8
Increments for 47 ^m 13 ^s	11 48'·3			11 16'·0			
v or d corrections for 47 ^m		-0'·5		11'·4		+12'·5	
Sum for Jan. 22 ^d 15 ^h 47 ^m 13 ^s	53 52'·8	S.19 36'·9		357 32'·8		N.0 22'·7	

(b) Planets. Required the L.H.A. and Dec. of (i) Venus on 1969 January 22 at G.M.T. $14^h 37^m 13^s$ in longitude E. $57^\circ 12'$; (ii) Mars on 1969 January 22 at G.M.T. $07^h 53^m 19^s$ in longitude W. $39^\circ 41'$.

	VENUS					MARS				
	G.H.A.	<i>v</i>	Dec.	<i>d</i>		G.H.A.	<i>v</i>	Dec.	<i>d</i>	
Daily page, Jan 22 ^d	(14 ^h) 341	32·8	+0·2	S.4 17·5	1·2	(07 ^h) 5	29·8	1·1	S.14 27·0	0·4
Increments (planets)	(37 ^m 13 ^s) 9	18·3			(53 ^m 19 ^s) 13	19·8				
<i>v</i> or <i>d</i> corrections	(37 ^m)	+0·1		-0·8	(53 ^m)	1·0			+0·4	
Sum = G.H.A. and Dec.	350	51·2		S.4 16·7		18	50·6		S.14 27·4	
Longitude (east)	+57	12			(west)	-39	41			
Multiples of 360°	-360					+360				
L.H.A. planet	48	03·2				339	09·6			

(c) Stars. Required the G.H.A. and Dec. of (i) *Aldebaran* on 1969 January 22 at G.M.T. $15^h 55^m 13^s$; (ii) *Vega* on 1969 January 22 at G.M.T. $16^h 02^m 45^s$.

Aldebaran				Vega			
	G.H.A.	Dec.		G.H.A.	Dec.		
Daily page (S.H.A. and Dec.)	291° 27'·7	N.16° 27'·0		81° 02'·1	N.38° 44'·9		
Daily page (G.H.A. Aries) (15 ^h)	346 47'·0			(16 ^h)	1 49'·4		
Increments (Aries) (55 ^m 13 ^s)	13 50'·5			(02 ^m 45 ^s)	0 41'·4		
Sum = G.H.A. star	652 05'·2			83 32'·9			
Multiples of 360°	-360						
G.H.A. star	292 05'·2			83 32'·9			

9. *Polaris (Pole Star) tables.* The tables on pages 274-276 provide means by which the latitude can be deduced from an observed altitude of *Polaris*, and they also give its azimuth; their use is explained and illustrated on those pages. They are based on the following formula:

$$\text{Latitude} - \text{corrected sextant altitude} = -p \cos h + \frac{1}{2} p \sin p \sin^2 h \tan (\text{latitude})$$

where p = polar distance of *Polaris* = $90^\circ - \text{Dec.}$

h = local hour angle of *Polaris* = L.H.A. Aries + S.H.A.

a_0 , which is a function of L.H.A. Aries only, is the value of both terms of the above formula calculated for mean values of the S.H.A. ($329^\circ 27'$) and Dec. (N. $89^\circ 07' \cdot 6$) of *Polaris*, for a mean latitude of 50° , and adjusted by the addition of a constant ($58' \cdot 8$). a_1 , which is a function of

L.H.A. Aries and latitude, is the excess of the value of the second term over its mean value for latitude 50° , increased by a constant (0.6) to make it always positive. a_2 , which is a function of L.H.A. Aries and date, is the correction to the first term for the variation of *Polaris* from its adopted mean position; it is increased by a constant (0.6) to make it positive. The sum of the added constants is 1° , so that:

$$\text{Latitude} = \text{corrected sextant altitude} - 1^\circ + a_0 + a_1 + a_2$$

RIISING AND SETTING PHENOMENA

10. *General.* On the right-hand daily pages are given the times of sunrise and sunset, of the beginning and end of civil and nautical twilights, and of moonrise and moonset for a range of latitudes from S. 60° to N. 72° . These times, which are given to the nearest minute, are strictly the G.M.T. of the phenomena on the Greenwich meridian; they are given for every day for moonrise and moonset, but only for the middle day of the three on each page for the solar phenomena.

They are approximately the L.M.T. of the corresponding phenomena on other meridians; they can be formally interpolated if desired. The G.M.T. of a phenomenon is obtained from the L.M.T. by:

$$\text{G.M.T.} = \text{L.M.T.} \begin{array}{l} + \text{west} \\ - \text{east} \end{array} \text{ longitude}$$

in which the longitude must first be converted to time by the table on page i or otherwise.

Interpolation for latitude can be done mentally or with the aid of Table I on page xxxii.

The following symbols are used to indicate the conditions under which, in high latitudes, some of the phenomena do not occur:

☐ Sun or Moon remains continuously above the horizon;

■ Sun or Moon remains continuously below the horizon;

//// twilight lasts all night.

11. *Sunrise, sunset, twilight.* The tabulated times may be regarded, without serious error, as the L.M.T. of the phenomena on any of the three days on the page and in any longitude. Precise times may normally be obtained by interpolating the tabular values for latitude and to the correct day and longitude, the latter being expressed as a fraction of a day by dividing it by 360° , positive for west and negative for east longitudes. In the extreme conditions near ☐, ■ or //// interpolation may not be possible in one direction, but accurate times are of little value in these circumstances.

Examples. Required the G.M.T. of (a) the beginning of morning twilights and sunrise on 1969 January 22 for latitude S. $48^\circ 55'$, longitude E. $75^\circ 18'$; (b) sunset and the end of evening twilights on 1969 January 24 for latitude N. $67^\circ 10'$, longitude W. $168^\circ 05'$.

	(a)	Twilight		Sunrise	(b)	Sunset	Twilight	
		Nautical	Civil				Civil	Nautical
From page 25								
L.M.T. for Lat.	S. 45°	h m 03 25	h m 04 09	h m 04 43	N. 66°	h m 14 57	h m 16 07	h m 17 15
Correction (p. xxxii) to $48^\circ 55'$		-27	-20	-12	$67^\circ 10'$	-17	-9	-6
Longitude (p. i)	E. $75^\circ 18'$	-5 01	-5 01	-5 01	W. $168^\circ 05'$	+11 12	+11 12	+11 12
G.M.T.		21 57	22 48	23 30		01 52	03 10	04 21

The L.M.T. are strictly for January 23 (middle date on page) and 0° longitude; for precise times it is necessary to interpolate:

(a) to January $22^d - 75^\circ/360^\circ = \text{Jan. } 21^d.8$, i.e. $\frac{1}{3}(1.2) = 0.4$ backwards towards the data on page 23; the corrections are -2^m to nautical twilight, -2^m to civil twilight and -3^m to sunrise.

(b) to January $24^d + 168^\circ/360^\circ = \text{Jan. } 24^d.5$, i.e. $\frac{1}{3}(1.5) = 0.5$ forwards towards the data on page 27; the corrections are $+7^m$ to sunset, $+5^m$ to civil twilight, and $+5^m$ to nautical twilight.

Basis of the tabulations. At sunrise and sunset $16'$ is allowed for semi-diameter and $34'$ for horizontal refraction, so that at the times given the Sun's upper limb is on the visible horizon; all times refer to phenomena as seen from sea level with a clear horizon.

At the times given for the beginning and end of twilight, the Sun's zenith distance is 96° for civil, and 102° for nautical twilight. The degree of illumination at the times given for civil twilight (in good conditions and in the absence of other illumination) is such that the brightest stars are visible and the horizon is clearly defined. At the times given for nautical twilight the horizon is in general not visible, and it is too dark for observation.

Times corresponding to other depressions of the Sun may be obtained by interpolation or, for depressions of more than 12° , less reliably, by extrapolation; times so obtained will be subject to considerable uncertainty near extreme conditions.

12. *Moonrise, moonset.* Precise times of moonrise and moonset are rarely needed; a glance at the tables will generally give sufficient indication of whether the Moon is available for observation and of the hours of rising and setting. If needed, precise times may be obtained as follows. Interpolate for latitude, using Table I on page xxxii, on the day wanted and also on the preceding day in east longitudes or the following day in west longitudes; take the difference between these times and interpolate for longitude by applying to the time for the day wanted the correction from Table II on page xxxii, so that the resulting time is between the two times used. In extreme conditions near  or  interpolation for latitude or longitude may be possible in one direction only; accurate times are of little value in these circumstances.

To facilitate this interpolation the times of moonrise and moonset are given for four days on each page; where no phenomenon occurs during a particular day (as happens once a month) the time of the phenomenon on the following day, increased by 24^h , is given; extra care must be taken when interpolating between two values, when one of those values exceeds 24^h . In practice it suffices to use the daily difference between the times for the nearest tabular latitude, and generally, to enter Table II with the nearest tabular arguments as in the examples below.

Examples. Required the G.M.T. of moonrise and moonset in latitude S. $47^\circ 10'$, longitudes E. $124^\circ 00'$ and W. $76^\circ 31'$ on 1969 January 25.

	Longitude E. $124^\circ 00'$		Longitude W. $76^\circ 31'$	
	Moonrise	Moonset	Moonrise	Moonset
	d h m	d h m	d h m	d h m
L.M.T. for Lat. S. 45°	25 13 10	25 22 56	25 13 10	25 22 56
Lat. correction (p. xxxii, Table I)	+7	-7	+7	-7
Long. correction (p. xxxii, Table II)	-23	-7	+16	+4
Correct L.M.T.	25 12 54	25 22 42	25 13 33	25 22 53
Longitude (p. i)	-8 16	-8 16	+5 06	+5 06
G.M.T.	25 04 38	25 14 26	25 18 39	26 03 59

Basis of the tabulations. At moonrise and moonset allowance is made for semi-diameter, parallax, and refraction ($34'$), so that at the times given the Moon's upper limb is on the visible horizon as seen from sea level.

ALTITUDE CORRECTION TABLES

13. *General.* In general two corrections are given for application to altitudes observed with a marine sextant; additional corrections are required for Venus and Mars and also for very low altitudes.

Duplicate tables of the correction for dip of the horizon, due to height of eye above sea level, are given on the inside front and back covers. Strictly this correction should be applied first and subtracted from the sextant altitude to give apparent altitude, which is the correct argument for the other tables.

Separate tables are given of the second correction for the Sun, for the stars and planets (inside front cover and facing page—pages A2, A3), and for the Moon (inside back cover and facing page—pages xxxiv and xxxv). For the Sun, values are given for both lower and upper limbs, for two periods of the year. The star tables are used for the planets, but additional corrections (inside front cover) are required for Venus and Mars. The Moon tables are in two parts: the main correction is a function of apparent altitude only; the other, which is given for both lower and upper limbs, depends also on the horizontal parallax, which has to be taken from the daily pages.

An additional correction, given on page A4, is also required for the change in the refraction, due to variations of pressure and temperature from the adopted standard conditions; it may generally be ignored for altitudes greater than 10° , except possibly in extreme conditions. The correction tables for the Sun, stars, and planets are in two parts; only those for altitudes greater than 10° are reprinted on the book-mark.

14. *Critical tables.* Some of the altitude correction tables are arranged as critical tables. In these an interval of apparent altitude (or height of eye) corresponds to a single value of the correction; no interpolation is required. At a "critical" entry the upper of the two possible values of the correction is to be taken. For example, in the table of dip, a correction of $-4'.1$ corresponds to all values of the height of eye from 17.5 to 18.3 feet inclusive.

15. *Examples.* The following examples illustrate the use of the altitude correction tables; the sextant altitudes given are assumed to be taken on 1969 January 22 with a marine sextant at height 18 feet, temperature -3°C . and pressure 982 mb., the Moon sights being taken at about 10^{h} G.M.T.

	SUN lower limb	SUN upper limb	MOON lower limb	MOON upper limb	VENUS	Polaris
Sextant altitude	$21^\circ 19.7$	$3^\circ 20.2$	$33^\circ 27.6$	$26^\circ 06.7$	$4^\circ 32.6$	$49^\circ 36.5$
Dip, height 18 feet	-4.1	-4.1	-4.1	-4.1	-4.1	-4.1
Main correction	$+13.8$	-30.8	$+57.4$	$+60.5$	-10.8	-0.8
L, U correction for Moon	—	—	$+4.8$	$+3.5$	—	—
$-30'$ for upper limb (Moon)	—	—	—	-30.0	—	—
Additional correction for Venus	—	—	—	—	$+0.2$	—
Additional refraction correction	-0.1	-0.3	0.0	-0.1	-0.3	0.0
Corrected sextant altitude	$21^\circ 29.3$	$2^\circ 45.0$	$34^\circ 25.7$	$26^\circ 36.5$	$4^\circ 17.6$	$49^\circ 31.6$

The main corrections have been taken out with apparent altitude (sextant altitude corrected for dip) as argument, interpolating where possible. These refinements are rarely necessary.

16. *Basis of the corrections.* The table for the dip of the sea horizon is based on the formula:

$$\text{Correction for dip in minutes of arc} = -0.97 \sqrt{(\text{height of eye in feet})}$$

The mean refraction, given explicitly in the correction table for the stars and planets and

incorporated into those for the Sun and Moon, is based on Garfinkel's theory and is for a temperature of 10°C . (50°F .) and a pressure of 1010 mb. (29.83 inches). The additional corrections for variations of temperature and pressure from these adopted means are also based on Garfinkel's theory; there is no significant difference between the various theories to the accuracy given.

The correction table for the Sun includes the effects of semi-diameter, parallax, and irradiation, as well as the mean refraction; for the upper limb a correction of $-1'2$ is included for the combined effect of irradiation of the limb and horizon, but no such correction is needed for the lower limb.

The additional corrections for Venus and Mars allow for parallax and phase, and are given by $p \cos H - k \cos \theta$, where H is the altitude, θ the angle at the planet between the vertical and the Sun: p and k are, for Venus, for 1969:—

	Jan. 1	Feb. 9	Mar. 5	Mar. 21	Apr. 25	May 11	June 3	July 22	Dec. 31
p	0.2	0.3	0.4	0.5	0.4	0.3	0.2	0.1	
k	0.1	0.2	0.3	0.4	0.3	0.2	0.1	0.0	

The corrections given on page A2, and on the bookmark, are mean values applicable, in the case of Venus, only when the Sun is below the horizon. For daylight observations of Venus the observed values of H and θ should be used to calculate the correction directly; the term $-k \cos \theta$ is positive when the Sun is lower than Venus, zero when they have the same altitude, and negative when the Sun is higher.

In the case of the Moon the correction table includes the effects of semi-diameter, parallax and augmentation as well as the mean refraction; no correction for irradiation is included.

17. *Bubble sextant observations.* When observing with a bubble sextant no correction is necessary for dip, semi-diameter, or augmentation. For the stars and planets the corrections given may be used unchanged, and they should also be used for the Sun; for the Moon it is easiest to take the mean of the corrections for lower and upper limbs and subtract $15'$ from the altitude; the correction for dip must not be applied.

AUXILIARY AND PLANNING DATA

18. *Sun and Moon.* On the daily pages are given: the semi-diameters and the times of meridian passage of both Sun and Moon over the Greenwich meridian; the equation of time; the horizontal parallax and the age of the Moon, together with a symbol indicating the phase. For the Moon, the semi-diameters for each of the three days are given, in order, at the foot of the column; for the Sun a single value is sufficient.

The times of the phases of the Moon are given in G.M.T. on page 4.

19. *Planets.* The magnitudes of the planets are given immediately following their names in the headings on the daily pages; their S.H.A. and times of meridian passage, for the middle day of the three on the page, are also given.

The planet notes and diagram on pages 8 and 9 provide descriptive information as to the suitability of the planets for observation during the year, and of their positions and movements.

20. *Stars.* The time of meridian passage of the first point of Aries over the Greenwich meridian is given on the daily pages, for the middle day of the three on the page, to $0^{\text{m}}.1$. The interval between successive meridian passages is $23^{\text{h}} 56^{\text{m}}.1$ (24^{h} less $3^{\text{m}}.9$) so that times for intermediate days and other meridians can readily be derived. If a precise time is required it may be obtained by finding the G.M.T. at which L.H.A. Aries is zero.

The meridian passage of a star occurs when its L.H.A. is zero, that is when L.H.A. Aries + S.H.A. = 360° . An approximate time can be obtained from the planet diagram on page 9.

The star charts on pages 266 and 267 are intended to assist identification. They show the relative positions of the stars in the sky as seen from the Earth and include all 173 stars used in the Almanac, together with a few others to complete the main constellation configurations. The local meridian at any time may be located on the chart by means of its S.H.A. which is $360^{\circ} - \text{L.H.A. Aries}$, or west longitude $- \text{G.H.A. Aries}$.

21. *Star globe.* To set a star globe on which is printed a scale of L.H.A. Aries, first set the globe for latitude and then rotate about the polar axis until the scale under the edge of the meridian circle reads L.H.A. Aries.

To mark the positions of the Sun, Moon, and planets on the star globe, take the difference G.H.A. Aries — G.H.A. body and use this along the L.H.A. Aries scale, in conjunction with the declination, to plot the position. G.H.A. Aries — G.H.A. body is most conveniently found by taking the difference when the G.H.A. of the body is small (less than 15°), which happens once a day.

22. *Calendar.* On page 4 are given lists of ecclesiastical festivals, and of the principal anniversaries and holidays in the British Commonwealth and the United States of America. The calendar on page 5 includes the day of the year as well as the day of the week.

Brief particulars are given, at the foot of page 5, of the solar and lunar eclipses occurring during the year; the times given are in G.M.T. The principal features of the more important solar eclipses are shown on the maps on pages 6 and 7.

23. *Standard times.* The lists on pages 262–265 give the standard times used in most countries. In general no attempt is made to give details of the beginning and end of summer time, since they are liable to frequent changes at short notice.

The Date or Calendar Line is an arbitrary line, on either side of which the date differs by one day; when crossing this line on a westerly course, the date must be advanced one day; when crossing it on an easterly course, the date must be put back one day. The line is a modification of the line of the 180th meridian, and is drawn so as to include, as far as possible, islands of any one group, etc., on the same side of the line. It may be traced by joining up the following positions:

Lat. S. $60^\circ 00'$	S. $51^\circ 00'$	S. $45^\circ 00'$	S. $15^\circ 00'$	S. $5^\circ 00'$	N. $48^\circ 00'$	N. $53^\circ 00'$	N. $65^\circ 30'$
Long. $180^\circ 00'$	$180^\circ 00'$	W. $172^\circ 30'$	W. $172^\circ 30'$	$180^\circ 00'$	$180^\circ 00'$	E. $170^\circ 00'$	W. $169^\circ 00'$

Thence through the middle of the Diomed Islands to Lat. N. $68^\circ 00'$, Long. W. $169^\circ 00'$, and thence passing east of Herald Island to Lat. N. $75^\circ 00'$, Long. $180^\circ 00'$.

ACCURACY

24. *Main data.* The quantities tabulated in this Almanac are generally correct to the nearest 0.1 ; the exception is the Sun's G.H.A. which is deliberately adjusted by up to 0.15 to reduce the error due to ignoring the v -correction. The G.H.A. and Dec. at intermediate times cannot be obtained to this precision, since at least two quantities must be added; moreover, the v - and d -corrections are based on mean values of v and d and are taken from tables for the whole minute only. The largest error that can occur in the G.H.A. or Dec. of any body other than the Sun or Moon is less than 0.2 ; it may reach 0.25 for the G.H.A. of the Sun and 0.3 for that of the Moon.

In practice it may be expected that only one third of the values of G.H.A. and Dec. taken out will have errors larger than 0.05 and less than one tenth will have errors larger than 0.1 .

25. *Altitude corrections.* The errors in the altitude corrections are nominally of the same order as those in G.H.A. and Dec., as they result from the addition of several quantities each correctly rounded off to 0.1 . But the actual values of the dip and of the refraction at low altitudes may, in extreme atmospheric conditions, differ considerably from the mean values used in the tables.

USE OF THIS ALMANAC IN 1970

This Almanac may be used for the Sun and stars in 1970 in the following manner.

For the Sun, take out the G.H.A. and Dec. for the same date but for a time $5^h 48^m 00^s$ earlier than the G.M.T. of observation; add $87^\circ 00'$ to the G.H.A. so obtained. The error, mainly due to planetary perturbations of the Earth, is unlikely to exceed 0.4 .

For the stars, calculate the G.H.A. and Dec. for the same date and the same time, but subtract 15.1 from the G.H.A. so found. The error, due to incomplete correction for precession and nutation, is unlikely to exceed 0.4 . If preferred, the same result can be obtained by using a time $5^h 48^m 00^s$ earlier than the G.M.T. of observation (as for the Sun) and adding $86^\circ 59.2'$ to the G.H.A. (or adding 87° as for the Sun and subtracting 0.8 , for precession, from the S.H.A. of the star).

The Almanac cannot be so used for the Moon or planets.

LIST I—PLACES EAST ON G.M.T. (EAST OF GREENWICH)

The times given } added to G.M.T. to give Standard Time.
below should be } subtracted from Standard Time to give G.M.T.

	h	m	s		h	m	s
Aden	03			France†	01		
Admiralty Islands	10			French Somaliland	03		
Afghanistan	04	30		Friendly Islands	13		
Albania*	01						
Amirante Islands	04			Gabon	01		
Andaman Islands	05	30		Germany	01		
Angola (Portuguese West Africa)	01			Gibraltar†	01		
Annobon Island†	01			Gilbert and Ellice Islands	12		
Australian Capital Territory	10			Greece	02		
Austria	01			Guam	10		
				Gwadar	05		
Bahrein	04						
Balearic Islands†	01			Holland	01		
Belgium	01			Hong Kong*	08		
Botswana	02			Hungary	01		
British New Guinea	10						
Bulgaria	02			India	05	30	
Burma	06	30		Indonesia, Republic of			
				Bali, Bangka, Belitong, Java,			
Cambodia	07			Madura, Sumatra	07		
Cameroun Republic	01			Borneo, Celebes, Flores, Lombok,			
Caroline Islands (east of long. E. 160°)	12			Sumba, Sumbawa, Timor	08		
(west of long. E. 160°)	10			Aru, Kei, Moluccas, Tanimbar,			
(Truk, Ponape)	11			West Irian	09		
Central African Republic†	01			Iran (Persia)	03	30	
Ceylon	05	30		'Iraq	03		
Chad	01			Israel	02		
Chagos Archipelago	05			Italy*	01		
Chatham Islands†	12	45					
China ¹	08			Japan	09		
Christmas Island, Indian Ocean	07			Jappen Islands	09		
Cocos-Keeling Islands	06	30		Jordan	02		
Comoro Islands	03						
Congo Republic	01			Kamchatka Peninsula	12		
Congolese Republic:				Kenya	03		
western part	01			Korea	09		
eastern part	02			Kuril Islands	11		
Corsica†	01			Kuweit	03		
Crete	02						
Cyprus	02			Laccadive Islands	05	30	
Cyrenaica†	02			Ladrone Islands	10		
Czechoslovakia	01			Laos	07		
				Latvia	03		
Dahomey, Republic of	01			Lebanon*	02		
Denmark	01			Lesotho	02		
				Libya	02		
Egypt*	02			Lichtenstein	01		
Ellice Islands	12			Lithuania	03		
Estonia	03			Lord Howe Island	10	30	
Ethiopia	03			Luxembourg†	01		
Fernando Po†	01			Macao*	08		
Fiji	12			Malagasy Republic	03		
Finland	02			Malawi	02		
Formosa* (T'ai Wan)	08			Malaya, Federation of	07	30	
				Malaysia (Sabah and Sarawak)	08		

* Summer time may be kept in these countries.

† This time is used throughout the year, but may differ from the legal time.

¹ All the coast, but some areas may keep summer time.

LIST I—(continued)

	h	m	s		h	m	s
Maldives Republic	05			Schouten Islands	09		
Malta	01			Seychelles	04		
Manchuria	09			Siam (Thailand)	07		
Mariana Islands	10			Siberia ² (west of long. E. 67° 30')...	05		
Marshall Islands	12			(long. E. 67° 30' to E. 82° 30')...	06		
Mauritius	04			(long. E. 82° 30' to E. 97° 30')...	07		
Monaco†	01			(long. E. 97° 30' to E. 112° 30')...	08		
Mozambique (Portuguese E. Africa)	02			(long. E. 112° 30' to E. 127° 30')...	09		
Mukalla (Hadhramaut)	03			(long. E. 127° 30' to E. 142° 30')...	10		
Nanyo-Gunto	09			(long. E. 142° 30' to E. 157° 30')...	11		
Nauru	11	30		(long. E. 157° 30' to E. 172° 30')...	12		
Netherlands, The	01			(east of long. E. 172° 30') ...	13		
New Caledonia	11			Sicily	01		
New Guinea, British	10			Singapore	07	30	
New Hebrides	11			Socotra	03		
New South Wales ¹	10			Solomon Islands	11		
New Zealand	12			Somali Republic	03		
Nicobar Islands	05	30		South Africa, Republic of	02		
Nigeria, Republic of	01			South Australia	09	30	
Norfolk Island	11	30		Spain†	01		
Northern Territory, Australia	09	30		Spanish Guinea†	01		
Norway*	01			Spitzbergen	01		
Novaya Zemlya	05			Sudan, Republic of	02		
Ocean Island	11			Swaziland	02		
Okinawa	09			Sweden	01		
'Oman (Masira, Muscat and Salala)	04			Switzerland	01		
Pakistan (East)	06			Syria*	02		
(West)	05			T'ai Wan* (Formosa)	08		
Papua	10			Tanzania	03		
Persia (Iran)	03	30		Tasmania	10		
Pescadores Islands*	08			Thailand (Siam)	07		
Philippine Republic	08			Timor	08		
Poland*	01			Tonga Islands	13		
Portugal	01			Tripolitania	02		
Portuguese East Africa (Mozambique)	02			Trucial 'Oman (Sharja)	04		
Portuguese West Africa (Angola) ...	01			Truk	11		
Qatar	04			Tunisia	01		
Queensland	10			Turkey*	02		
Réunion	04			Uganda	03		
Rhodesia	02			Victoria, Australia	10		
Romania	02			Viet Nam (Northern zone)	07		
Russia ² (west of long. E. 40°)	03			(Southern zone)	08		
(long. E. 40° to E. 52° 30')	04			Western Australia	08		
(east of long. E. 52° 30')	05			West Irian	09		
Ryukyu Islands	09			Wrangell Island	13		
Sakhalin (south of lat. N. 50°)	09			Yugoslavia	01		
(north of lat. N. 50°)	10			Zambia	02		
Santa Cruz Islands	11						
Sardinia	01						
Saudi Arabia (Dharan)	04						
(Jidda)	03						

* Summer time may be kept in these countries.

† This time is used throughout the year, but may differ from the legal time.

¹ Except Broken Hill Area, which keeps 09^h 30^m.² The boundaries between the zones are irregular; the longitudes given are approximate only.

LIST II—PLACES NORMALLY KEEPING G.M.T.

Algeria	Faeroes, The	Guinea Republic	Mauritania	St. Helena	Tangier
Ascension Island	Gambia	Ireland, Northern ¹	Morocco	São Thomé	Togo Republic
Canary Islands†	Ghana	Irish Republic*	Principe	Sierra Leone	Tristan da Cunha
Channel Islands ¹	Great Britain ¹	Madeira	Rio de Oro‡	Spanish Sahara	W. African Republics

* Summer time may be kept in these countries.

† G.M.T. is in general use throughout the year, but the legal standard time differs from G.M.T.

¹ Summer time, one hour in advance of G.M.T., is kept from April 20^d 02^h to October 5^d 02^h G.M.T. (*Summer Time Act*, 1925), but this period may be extended by *Order in Council*.

LIST III—PLACES SLOW ON G.M.T. (WEST OF GREENWICH)

The times given } subtracted from G.M.T. to give Standard Time.
below should be } added to Standard Time to give G.M.T.

	h	m	s		h	m	s
Alabama, U.S.A. ¹	06			Delaware, U.S.A. ¹	05		
Alaska, U.S.A., south-east coast to and including Cross Sound, Douglas, Juneau, Kimsham Cove and Petersburg	08			Dominican Republic†	05		
coast northward of Cross Sound to long. W. 141°	09			Dutch Guiana (Surinam)	03	30	
long. W. 141° to W. 162°, including Anchorage, Fairbanks, Seward, Valdez	10			Easter Island (I. de Pascua)	07		
west coast (Nome), Aleutian Islands	11			Ecuador	05		
Alberta*	07			Falkland Islands ⁵	04		
Argentina*	04			Bases in The Antarctic Peninsula	03		
Arizona, ² U.S.A. ¹	07			Fanning Island	10		
Arkansas, U.S.A. ¹	06			Fernando Noronha	02		
Austral Islands ³	10			Florida, ² U.S.A. ¹	05		
Azores‡	01			French Guiana	04		
Bahamas*	05			Galapagos Islands	05		
Barbados	04			Georgia, U.S.A. ¹	05		
Bermuda	04			Greenland, Scoresby Sound	02		
Bolivia	04			Angmagssalik and W. coast	03		
Brazil* (Eastern) ⁴	03			Thule area	04		
(Territory of Acre)	05			Grenada*	04		
(Western)	04			Guadeloupe	04		
British Columbia*	08			Guatemala	06		
British Honduras†	06			Guiana, Dutch	03	30	
California, U.S.A. ¹	08			French	04		
Canada (see provinces)	03	30	to 09 ^h	Guyana	03	45	
Cape Verde Islands	02			Haiti	05		
Cayman Islands	05			Hawaii, U.S.A.	10		
Chile	04			Honduras	06		
Christmas Island, Pacific Ocean	09			Honduras, British†	06		
Colombia	05			Iceland*	01		
Colorado, U.S.A. ¹	07			Idaho, ² U.S.A. ¹	07		
Connecticut, U.S.A. ¹	05			Illinois, U.S.A. ¹	06		
Cook Islands (except Niue)	10	30		Indiana, U.S.A. ¹	06		
Costa Rica	06			Iowa, U.S.A. ¹	06		
Cuba*	05			Jamaica	05		
Curaçao Island	04			Jan Mayen Island	01		
				Johnston Island	11		
				Juan Fernandez Island	04		
				Kansas, ² U.S.A. ¹	06		
				Kentucky, ² U.S.A. ¹	06		

* Summer time may be kept in these countries.

† Winter time may be kept in these countries.

‡ This time is used throughout the year, but may differ from the legal time.

¹ Summer (daylight-saving) time, one hour fast on the time given, is kept in some parts of the U.S.A., especially in the east and in the metropolitan areas. The dates of beginning and end are the last Sunday in April and the last Sunday in October, at 02^h 00^m local clock time.

² This applies to the greater portion of the state.

³ This is the legal standard time, but local mean time is generally used.

⁴ Including all the coast.

⁵ Port Stanley keeps summer time October to March.

LIST III—(continued)

	h	m	s		h	m	s
Labrador*	03	30		Paraguay	04		
Leeward Islands	04			Pennsylvania, U.S.A. ¹	05		
Liberia	00	44	30	Peru	05		
Louisiana, U.S.A. ¹	06			Portuguese Guinea	01		
Low Archipelago	10			Prince Edward Island*	04		
Maine, U.S.A. ¹	05			Puerto Rico	04		
Manitoba*	06			Quebec* (east of long. W. 68°)	04		
Marquesas Islands ²	09	30		(west of long. W. 68°)	05		
Martinique	04			Rarotonga	10	30	
Maryland, U.S.A. ¹	05			Rhode Island, U.S.A. ¹	05		
Massachusetts, U.S.A. ¹	05			St. Pierre and Miquelon	03		
Mexico ³	06			Salvador, El	06		
Michigan, ⁴ U.S.A. ¹	05			Samoa	11		
Midway Islands	11			Saskatchewan*	07		
Minnesota, U.S.A. ¹	06			Scoresby Sound, Greenland	02		
Miquelon	03			Society Islands ²	10		
Mississippi, U.S.A. ¹	06			South Carolina, U.S.A. ¹	05		
Missouri, U.S.A. ¹	06			South Dakota, U.S.A. ¹ (eastern part)	06		
Montana, U.S.A. ¹	07			(western part)	07		
Nebraska, U.S.A. ¹	06			South Georgia	02		
Nevada, U.S.A. ¹	08			Surinam (Dutch Guiana)	03	30	
New Brunswick*	04			Tennessee, ⁴ U.S.A. ¹	06		
Newfoundland*	03	30		Texas, ⁴ U.S.A. ¹	06		
New Hampshire, U.S.A. ¹	05			Tobago	04		
New Jersey, U.S.A. ¹	05			Trindade Islands, S. Atlantic	02		
New Mexico, U.S.A. ¹	07			Trinidad	04		
New York, U.S.A. ¹	05			Tuamotu Archipelago ²	10		
Nicaragua	06			Tubuai Islands ²	10		
Niue Island	11			Turks and Caicos Islands	05		
North Carolina, U.S.A. ¹	05			Uruguay*	03	30	
North Dakota, ⁴ U.S.A. ¹	06			Utah, ⁴ U.S.A. ¹	07		
Northwest Territories*				Venezuela	04		
(east of long. W. 68°)	04			Vermont, U.S.A. ¹	05		
(long. W. 68° to W. 85°)	05			Virgin Islands	04		
(long. W. 85° to W. 102°)	06			Virginia, U.S.A. ¹	05		
(long. W. 102° to W. 120°)	07			Washington, D.C., U.S.A. ¹	05		
(west of long. W. 120°)	08			Washington, U.S.A. ¹	08		
Nova Scotia*	04			West Virginia, U.S.A. ¹	05		
Ohio, U.S.A. ¹	05			Windward Islands	04		
Oklahoma, U.S.A. ¹	06			Wisconsin, U.S.A. ¹	06		
Ontario* (east of long. W. 90°)	05			Wyoming, U.S.A. ¹	07		
(west of long. W. 90°)	06			Yukon*	09		
Oregon, U.S.A. ¹	08						
Panama Canal Zone	05						
Panama, Republic of	05						

* Summer time may be kept in these countries.

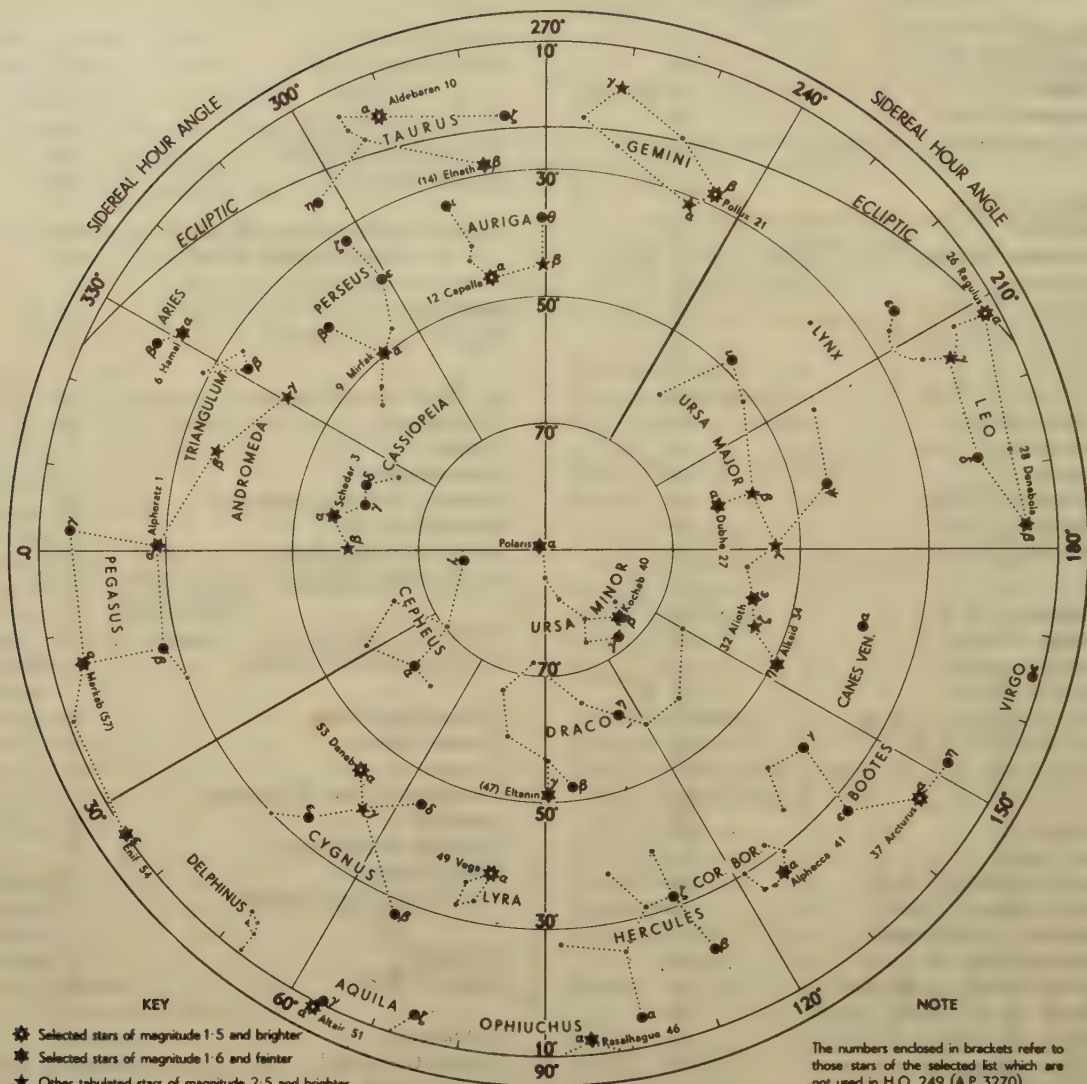
¹ Summer (daylight-saving) time, one hour fast on the time given is kept in some parts of the U.S.A., especially in the east and in the metropolitan areas. The dates of beginning and end are the last Sunday in April and the last Sunday in October, at 02^h 00^m local clock time.

² This is the legal standard time, but local mean time is generally used.

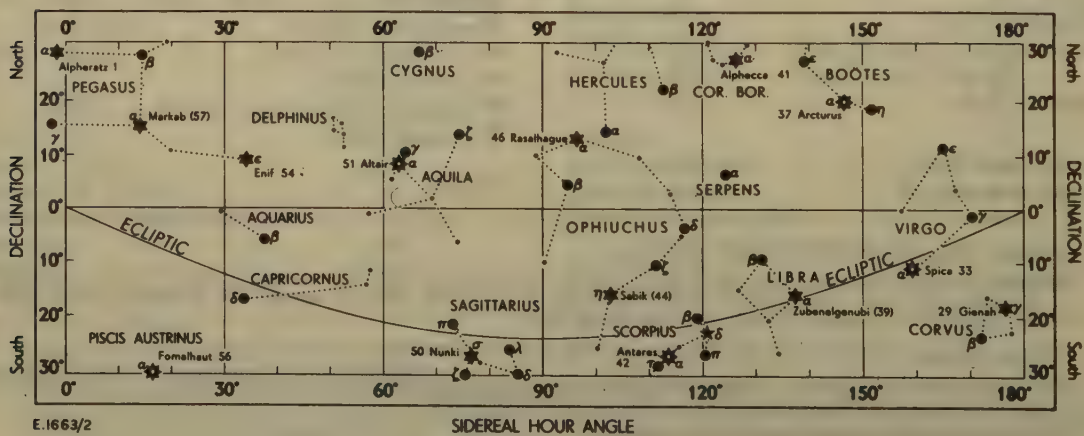
³ Except the states of Sonora, Sinaloa, Nayarit, and the Southern District of Lower California which keep 07^h; and the Northern District of Lower California which keeps 08^h.

⁴ This applies to the greater portion of the state.

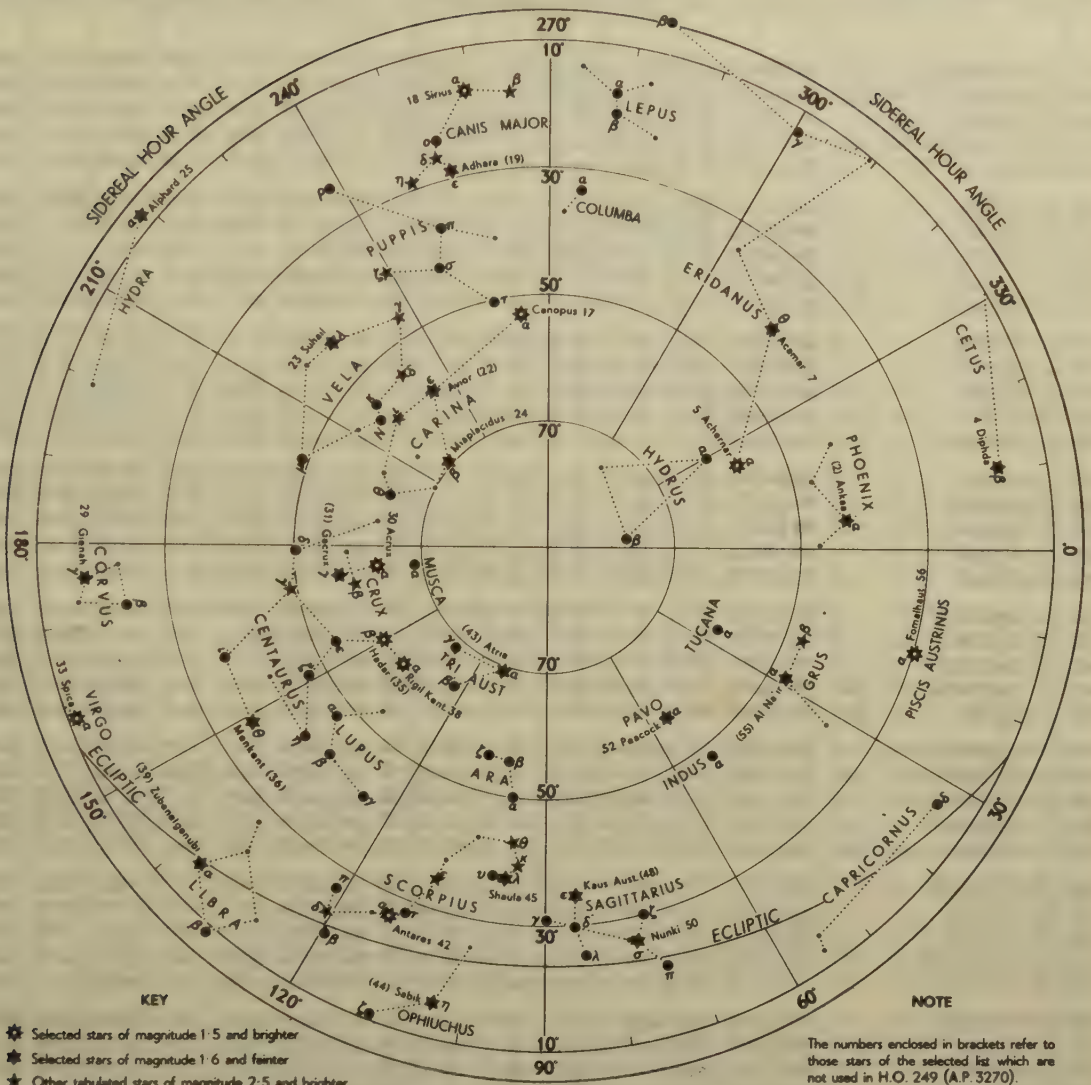
NORTHERN STARS



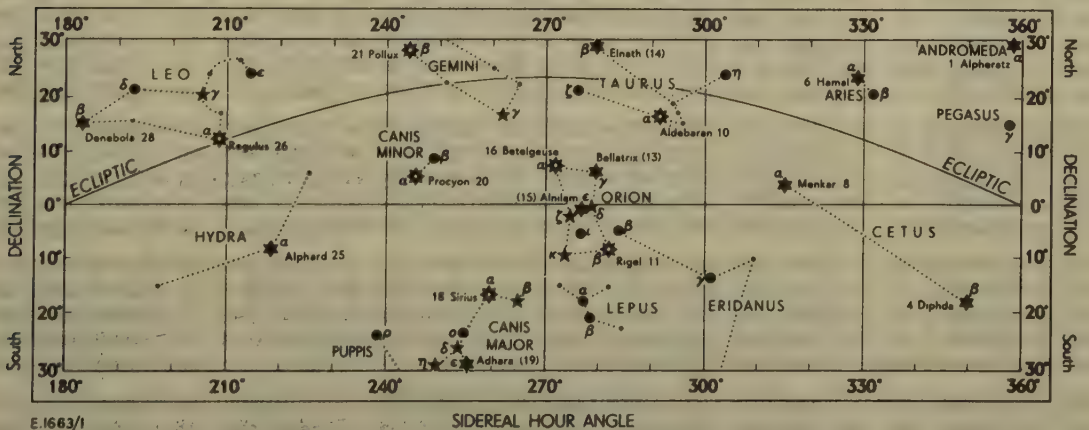
EQUATORIAL STARS (S.H.A. 0° to 180°)



SOUTHERN STARS



EQUATORIAL STARS (S.H.A. 180° to 360°)



Mag.	Name and No.		S.H.A.							Declination						
				JAN.	FEB.	MAR.	APR.	MAY.	JUNE		JAN.	FEB.	MAR.	APR.	MAY	JUNE
3.4	γ	Cephei †	5	30.5	31.0	31.1	30.9	30.3	29.5	N. 77	27.8	27.7	27.6	27.5	27.4	27.4
2.6	α	Pegasi	57	14	12.0	12.0	12.0	11.9	11.7	11.4	N. 15	02.3	02.2	02.2	02.2	02.3
2.6	β	Pegasi		14	26.3	26.3	26.3	26.1	25.9	25.7	N. 27	54.9	54.8	54.8	54.7	54.8
1.3	α	Piscis Aust.	56	16	01.0	01.0	01.0	00.8	00.6	00.3	S. 29	47.4	47.4	47.3	47.2	47.1
2.2	β	Gruis		19	47.8	47.8	47.7	47.5	47.3	47.0	S. 47	03.1	03.0	02.9	02.7	02.5
2.9	α	Tucanæ		25	54.3	54.3	54.2	53.9	53.6	53.1	S. 60	25.1	25.0	24.9	24.7	24.6
2.2	α	Gruis	55	28	25.9	25.9	25.8	25.6	25.3	25.0	S. 47	07.0	06.8	06.7	06.6	06.5
3.0	δ	Capricorni		33	40.3	40.2	40.1	39.9	39.7	39.5	S. 16	16.3	16.3	16.2	16.2	16.1
2.5	ε	Pegasi	54	34	20.3	20.3	20.2	20.0	19.8	19.6	N. 9	43.8	43.8	43.8	43.8	43.9
3.1	β	Aquarii		37	31.3	31.3	31.2	31.0	30.8	30.5	S. 5	42.7	42.7	42.7	42.6	42.5
2.6	α	Cephei		40	33.3	33.3	33.1	32.8	32.4	32.1	N. 62	27.3	27.1	27.0	26.9	26.9
2.6	ε	Cygni		48	46.1	46.0	45.9	45.7	45.4	45.2	N. 33	51.1	51.0	50.9	50.9	51.1
1.3	α	Cygni	53	49	54.9	54.9	54.7	54.5	54.2	53.9	N. 45	10.1	09.9	09.8	09.8	10.0
3.2	α	Indi		51	09.4	09.3	09.1	08.8	08.5	08.2	S. 47	24.3	24.2	24.1	24.0	23.9
2.1	α	Pavonis	52	54	12.3	12.2	11.9	11.5	11.1	10.8	S. 56	50.4	50.2	50.1	50.0	50.0
2.3	γ	Cygni		54	43.8	43.7	43.5	43.3	43.0	42.8	N. 40	09.3	09.2	09.1	09.0	09.1
0.9	α	Aquilæ	51	62	41.3	41.2	41.0	40.8	40.5	40.3	N. 8	46.9	46.9	46.8	46.9	47.0
2.8	γ	Aquilæ		63	48.5	48.4	48.3	48.0	47.8	47.6	N. 10	32.0	32.0	31.9	31.9	32.0
3.0	δ	Cygni		63	60.4	60.3	60.1	59.8	59.6	59.4	N. 45	03.1	03.0	02.9	02.9	03.0
3.2	β	Cygni		67	38.3	38.2	38.0	37.8	37.6	37.4	N. 27	53.4	53.3	53.3	53.3	53.5
3.0	π	Sagittarii		73	01.5	01.3	01.1	00.9	00.6	00.4	S. 21	04.6	04.6	04.6	04.5	04.5
3.0	ζ	Aquilæ		73	60.6	60.4	60.2	60.0	59.8	59.6	N. 13	48.8	48.7	48.6	48.6	48.8
2.7	ζ	Sagittarii		74	50.7	50.5	50.3	50.1	49.8	49.6	S. 29	55.7	55.7	55.7	55.6	55.6
2.1	σ	Sagittarii	50	76	40.2	40.0	39.8	39.5	39.3	39.1	S. 26	20.4	20.4	20.3	20.3	20.3
0.1	α	Lyrae	49	81	02.1	01.9	01.7	01.5	01.2	01.1	N. 38	45.0	44.9	44.8	44.9	45.1
2.9	λ	Sagittarii		83	29.5	29.3	29.0	28.8	28.5	28.4	S. 25	26.6	26.6	26.6	26.6	26.5
2.0	ε	Sagittarii	48	84	28.6	28.4	28.1	27.9	27.6	27.4	S. 34	24.2	24.2	24.1	24.1	24.2
2.8	δ	Sagittarii		85	15.2	15.0	14.7	14.5	14.2	14.0	S. 29	50.7	50.7	50.7	50.7	50.7
3.1	γ	Sagittarii		89	03.1	02.9	02.6	02.3	02.1	01.9	S. 30	25.7	25.7	25.7	25.7	25.7
2.4	γ	Draconis	47	91	02.2	02.0	01.7	01.4	01.2	01.0	N. 51	29.2	29.1	29.0	29.1	29.4
2.9	β	Ophiuchi		94	31.2	31.0	30.8	30.5	30.4	30.2	N. 4	34.5	34.5	34.4	34.4	34.5
2.5	κ	Scorpii		94	55.2	55.0	54.7	54.4	54.2	54.0	S. 39	01.0	01.0	01.0	01.0	01.1
2.0	θ	Scorpii		96	14.0	13.8	13.5	13.2	12.9	12.7	S. 42	58.9	58.8	58.8	58.9	59.0
2.1	α	Ophiuchi	46	96	37.9	37.7	37.4	37.2	37.0	36.9	N. 12	34.6	34.6	34.5	34.5	34.7
1.7	λ	Scorpii	45	97	07.8	07.6	07.3	07.0	06.8	06.6	S. 37	05.1	05.0	05.1	05.1	05.1
3.0	β	Draconis		97	34.5	34.2	33.9	33.7	33.4	33.3	N. 52	19.1	19.0	18.9	19.0	19.1
3.0	α	Aræ		97	38.8	38.5	38.1	37.8	37.5	37.3	S. 49	51.3	51.2	51.2	51.3	51.4
2.8	ν	Scorpii		97	50.5	50.3	50.0	49.7	49.5	49.3	S. 37	16.5	16.4	16.5	16.5	16.5
2.8	β	Aræ		99	19.7	19.4	19.0	18.6	18.3	18.1	S. 55	30.2	30.2	30.2	30.2	30.4
Var. †	α	Herculis		101	41.8	41.6	41.3	41.1	41.0	40.9	N. 14	25.2	25.1	25.1	25.1	25.3
2.6	η	Ophiuchi	44	102	51.3	51.1	50.8	50.6	50.4	50.3	S. 15	41.4	41.5	41.5	41.5	41.5
3.1	ζ	Aræ		105	59.8	59.4	59.0	58.6	58.4	58.2	S. 55	56.6	56.6	56.6	56.7	56.8
2.4	ε	Scorpii		107	58.0	57.8	57.5	57.2	57.0	56.9	S. 34	14.4	14.4	14.4	14.5	14.6
1.9	α	Triang. Aust.	43	108	40.2	39.7	39.1	38.6	38.2	38.0	S. 68	58.4	58.3	58.3	58.4	58.7
3.0	ζ	Herculis		109	58.5	58.3	58.0	57.8	57.7	57.6	N. 31	39.2	39.1	39.0	39.1	39.3
2.7	ζ	Ophiuchi		111	08.5	08.3	08.0	07.8	07.7	07.6	S. 10	30.5	30.6	30.6	30.6	30.6
2.9	τ	Scorpii		111	31.0	30.8	30.5	30.3	30.1	30.0	S. 28	09.3	09.3	09.3	09.4	09.4
2.8	β	Herculis		112	46.9	46.7	46.5	46.3	46.1	46.1	N. 21	33.1	33.0	33.0	33.0	33.2
1.2	α	Scorpii	42	113	07.7	07.5	07.2	07.0	06.8	06.7	S. 26	22.0	22.0	22.0	22.1	22.1
2.9	η	Draconis		114	06.9	06.5	06.1	05.8	05.7	05.7	N. 61	34.7	34.6	34.6	34.6	34.9
3.0	δ	Ophiuchi		116	49.4	49.2	49.0	48.8	48.6	48.6	S. 3	37.1	37.2	37.2	37.2	37.2
2.8	β	Scorpii		119	05.7	05.5	05.3	05.1	04.9	04.8	S. 19	43.4	43.5	43.5	43.6	43.6
2.5	δ	Scorpii		120	22.8	22.5	22.3	22.1	21.9	21.9	S. 22	32.2	32.2	32.3	32.3	32.4
3.0	π	Scorpii		120	45.7	45.4	45.1	44.9	44.8	44.7	S. 26	01.6	01.7	01.7	01.8	01.9
3.0	β	Trianguli Aust.		121	54.6	54.2	53.7	53.3	53.1	53.0	S. 63	20.1	20.1	20.2	20.3	20.5
2.8	α	Serpentis		124	19.1	18.8	18.6	18.5	18.3	18.3	N. 6	31.1	31.0	31.0	31.0	31.1
2.3	α	Coronæ Bor.	41	126	39.5	39.3	39.1	38.9	38.8	38.8	N. 26	48.8	48.7	48.7	48.7	48.8
3.0	γ	Lupi †		126	44.2	43.9	43.7	43.4	43.3	43.2	S. 41	03.8	03.9	03.9	04.0	04.1

‡ 3.0—3.7

† Not suitable for use with H.O. 214 (H.D. 486)

Mag.	Name and No.		S.H.A.							Declination						
				JULY	AUG.	SEPT.	OCT.	NOV.	DEC.		JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
3.4	γ	Cephei †	5	28.8	28.2	28.0	28.1	28.5	29.2	N. 77	27.5	27.6	27.8	28.0	28.2	28.2
2.6		Markab	57	14	11.2	11.0	11.0	11.0	11.1	N. 15	02.4	02.6	02.6	02.7	02.7	02.7
2.6		Scheat		14	25.4	25.3	25.2	25.2	25.3	25.4	N. 27	55.0	55.1	55.2	55.3	55.4
1.3		Fomalhaut	56	15	60.1	59.9	59.8	59.8	59.9	S. 29	46.9	46.9	46.9	47.0	47.1	47.1
2.2	β	Gruis		19	46.7	46.4	46.4	46.4	46.6	46.7	S. 47	02.5	02.5	02.6	02.7	02.8
2.9	α	Tucanæ		25	52.8	52.5	52.5	52.6	52.8	S. 60	24.5	24.6	24.7	24.8	24.9	24.9
2.2		Al Na'ir	55	28	24.7	24.5	24.4	24.5	24.7	S. 47	06.4	06.5	06.6	06.6	06.7	06.7
3.0	δ	Capricorni		33	39.3	39.1	39.1	39.2	39.3	39.3	S. 16	15.9	15.9	15.9	15.9	16.0
2.5		Enif	54	34	19.4	19.3	19.2	19.3	19.4	N. 9	44.0	44.1	44.2	44.3	44.2	44.2
3.1	β	Aquarii		37	30.3	30.2	30.2	30.3	30.4	30.5	S. 5	42.4	42.3	42.3	42.3	42.3
2.6		Alderamin		40	31.8	31.7	31.8	32.1	32.4	N. 62	27.2	27.4	27.5	27.7	27.7	27.7
2.6	ε	Cygni		48	45.0	45.0	45.0	45.1	45.3	N. 33	51.2	51.4	51.5	51.5	51.5	51.5
1.3		Deneb	53	49	53.8	53.7	53.8	54.0	54.1	N. 45	10.1	10.3	10.4	10.5	10.5	10.4
3.2	α	Indi		51	07.9	07.8	07.9	08.0	08.2	08.3	S. 47	24.0	24.0	24.1	24.2	24.2
2.1		Peacock	52	54	10.5	10.4	10.5	10.7	10.9	S. 56	50.1	50.2	50.2	50.3	50.3	50.2
2.3	γ	Cygni		54	42.6	42.6	42.7	42.9	43.0	43.1	N. 40	09.4	09.6	09.7	09.7	09.7
0.9		Altair	51	62	40.2	40.2	40.2	40.4	40.5	N. 8	47.1	47.2	47.3	47.3	47.3	47.2
2.8	γ	Aquilæ		63	47.5	47.5	47.5	47.6	47.7	47.8	N. 10	32.2	32.3	32.4	32.4	32.3
3.0	δ	Cygni		63	59.3	59.3	59.4	59.6	59.8	N. 45	03.2	03.4	03.5	03.6	03.5	03.4
3.2		Albireo		67	37.3	37.3	37.4	37.5	37.6	N. 27	53.6	53.7	53.8	53.8	53.8	53.7
3.0	π	Sagittarii		73	00.3	00.3	00.4	00.5	00.6	S. 21	04.5	04.5	04.5	04.5	04.5	04.5
3.0	ζ	Aquilæ		73	59.5	59.5	59.6	59.7	59.8	N. 13	48.9	49.0	49.1	49.1	49.0	49.0
2.7	ζ	Sagittarii		74	49.5	49.4	49.5	49.7	49.8	S. 29	55.6	55.7	55.7	55.7	55.7	55.7
2.1		Nunki	50	76	38.9	38.9	39.0	39.1	39.2	S. 26	20.3	20.3	20.3	20.3	20.3	20.3
0.1		Vega		49	81	01.0	01.1	01.2	01.4	01.6	N. 38	45.2	45.3	45.4	45.4	45.3
2.9	λ	Sagittarii		83	28.3	28.3	28.4	28.5	28.6	S. 25	26.6	26.6	26.6	26.6	26.6	26.6
2.0		Kaus Australis	48	84	27.3	27.3	27.4	27.6	27.6	S. 34	24.2	24.2	24.3	24.3	24.2	24.2
2.8	δ	Sagittarii		85	13.9	14.0	14.1	14.2	14.3	14.3	S. 29	50.7	50.7	50.7	50.7	50.7
3.1	γ	Sagittarii		89	01.9	01.9	02.0	02.1	02.2	S. 30	25.8	25.8	25.8	25.8	25.8	25.7
2.4		Eltanin	47	91	01.1	01.2	01.4	01.7	01.8	N. 51	29.5	29.6	29.7	29.6	29.6	29.4
2.9	β	Ophiuchi		94	30.2	30.2	30.3	30.4	30.5	30.5	N. 4	34.6	34.7	34.7	34.7	34.7
2.5	κ	Scorpii		94	53.9	54.0	54.1	54.3	54.3	S. 39	01.2	01.2	01.2	01.2	01.2	01.1
2.0	θ	Scorpii		96	12.7	12.7	12.9	13.0	13.1	S. 42	59.0	59.1	59.1	59.1	59.0	59.0
2.1		Rasalhague	46	96	36.9	36.9	37.1	37.2	37.2	N. 12	34.8	34.9	34.9	34.9	34.8	34.7
1.7		Shaula		45	97	06.6	06.6	06.8	06.9	06.9	S. 37	05.2	05.2	05.2	05.2	05.2
3.0	β	Draconis		97	33.4	33.5	33.8	34.0	34.2	N. 52	19.4	19.5	19.5	19.5	19.4	19.2
3.0	α	Aræ		97	37.3	37.3	37.5	37.7	37.8	S. 49	51.5	51.5	51.6	51.5	51.5	51.4
2.8	υ	Scorpii		97	49.3	49.3	49.5	49.6	49.6	S. 37	16.6	16.6	16.6	16.6	16.6	16.5
2.8	β	Aræ		99	18.1	18.2	18.4	18.6	18.6	S. 55	30.5	30.5	30.6	30.5	30.4	30.4
Var. †	α	Herculis		101	40.8	40.9	41.0	41.1	41.2	N. 14	25.4	25.4	25.5	25.4	25.4	25.3
2.6		Sabik	44	102	50.3	50.3	50.4	50.5	50.6	S. 15	41.5	41.5	41.4	41.4	41.4	41.5
3.1	ζ	Aræ		105	58.2	58.3	58.5	58.7	58.8	58.7	S. 55	56.9	57.0	57.0	56.9	56.8
2.4	ε	Scorpii		107	56.9	57.0	57.1	57.2	57.1	S. 34	14.6	14.6	14.6	14.6	14.5	14.5
1.9		Atria	43	108	38.0	38.3	38.6	38.9	39.0	S. 68	58.8	58.9	58.9	58.8	58.7	58.6
3.0	ζ	Herculis		109	57.6	57.7	57.9	58.0	58.1	58.0	N. 31	39.4	39.5	39.5	39.5	39.4
2.7	ζ	Ophiuchi		111	07.6	07.6	07.7	07.8	07.8	S. 10	30.6	30.5	30.5	30.5	30.5	30.6
2.9	τ	Scorpii		111	30.0	30.1	30.2	30.3	30.3	S. 28	09.5	09.5	09.5	09.4	09.4	09.4
2.8	β	Herculis		112	46.1	46.2	46.3	46.4	46.4	N. 21	33.3	33.3	33.3	33.3	33.2	33.1
1.2		Antares	42	113	06.7	06.8	06.9	07.0	06.9	S. 26	22.2	22.2	22.1	22.1	22.1	22.1
2.9	η	Draconis		114	05.8	06.1	06.4	06.7	06.9	06.9	N. 61	35.1	35.1	35.1	35.0	34.9
3.0	δ	Ophiuchi		116	48.6	48.7	48.8	48.8	48.9	S. 3	37.1	37.1	37.1	37.1	37.1	37.2
2.8	β	Scorpii		119	04.8	04.9	05.0	05.1	05.1	S. 19	43.6	43.6	43.6	43.5	43.5	43.5
2.5		Dschubba		120	21.9	21.9	22.0	22.1	22.1	S. 22	32.4	32.4	32.4	32.3	32.3	32.3
3.0	π	Scorpii		120	44.7	44.8	44.9	45.0	44.9	S. 26	01.9	01.9	01.9	01.8	01.8	01.8
3.0	β	Trianguli Aust.		121	53.1	53.3	53.6	53.7	53.8	S. 63	20.6	20.7	20.7	20.6	20.5	20.4
2.8	α	Serpentis		124	18.3	18.4	18.5	18.6	18.5	N. 6	31.2	31.2	31.2	31.2	31.1	31.0
2.3		Alphecca	41	126	38.8	38.9	39.1	39.1	39.0	N. 26	49.0	49.1	49.0	49.0	48.8	48.7
3.0	γ	Lupi †		126	43.3	43.4	43.5	43.6	43.6	43.4	S. 41	04.2	04.2	04.2	04.1	04.1

† 3.0—3.7

† Not suitable for use with H.O. 214 (H.D. 486)

Mag.	Name and No.	S.H.A.							Declination						
			JAN.	FEB.	MAR.	APR.	MAY	JUNE		JAN.	FEB.	MAR.	APR.	MAY	JUNE
3.1	γ Ursæ Minoris †	129	48.8	48.2	47.7	47.4	47.3	47.4	N. 71	56.2	56.2	56.2	56.3	56.5	56.6
3.1	γ Trianguli Aust.	130	60.7	60.2	59.7	59.3	59.0	59.0	S. 68	33.9	33.9	34.0	34.1	34.3	34.4
2.7	β Libræ	131	10.1	09.9	09.7	09.5	09.4	09.4	S. 9	16.3	16.4	16.4	16.4	16.4	16.4
2.8	β Lupi	135	52.8	52.5	52.3	52.1	51.9	51.9	S. 43	00.6	00.6	00.7	00.8	00.9	01.0
2.2	β Ursæ Minoris 40	137	18.4	17.7	17.2	16.8	16.8	17.1	N. 74	16.5	16.5	16.5	16.7	16.8	16.9
2.9	α Libræ	39	137	42.7	42.5	42.3	42.1	42.0	S. 15	54.9	55.0	55.1	55.1	55.1	55.1
2.6	ε Bootis	139	05.5	05.3	05.1	04.9	04.9	04.9	N. 27	12.0	11.9	11.9	12.0	12.0	12.1
2.9	α Lupi	140	02.3	02.0	01.7	01.5	01.4	01.4	S. 47	15.3	15.4	15.5	15.6	15.7	15.8
0.1	α Centauri	38	140	38.0	37.5	37.2	37.0	36.9	S. 60	42.3	42.3	42.4	42.6	42.7	42.8
2.6	η Centauri	141	37.2	36.9	36.7	36.5	36.4	36.4	S. 42	01.3	01.4	01.5	01.6	01.7	01.8
3.0	γ Bootis	142	17.6	17.3	17.1	16.9	16.9	16.9	N. 38	26.3	26.2	26.2	26.4	26.4	26.5
0.2	α Bootis	37	146	26.3	26.1	25.9	25.7	25.7	N. 19	20.4	20.3	20.3	20.3	20.4	20.5
2.3	θ Centauri	36	148	47.4	47.1	46.9	46.7	46.7	S. 36	13.0	13.1	13.2	13.3	13.4	13.5
0.9	β Centauri	35	149	36.0	35.6	35.3	35.1	35.1	S. 60	13.3	13.4	13.5	13.7	13.8	13.9
3.1	ζ Centauri	151	36.2	35.9	35.7	35.5	35.5	35.5	S. 47	08.1	08.2	08.3	08.4	08.5	08.6
2.8	η Bootis	151	41.9	41.6	41.4	41.3	41.3	41.3	N. 18	32.9	32.9	32.9	32.9	33.0	33.0
1.9	η Ursæ Majoris 34	153	25.0	24.7	24.5	24.4	24.4	24.5	N. 49	27.7	27.7	27.7	27.8	28.0	28.1
2.6	ε Centauri †	155	31.5	31.1	30.9	30.8	30.7	30.8	S. 53	18.4	18.5	18.6	18.8	18.9	19.0
1.2	α Virginis	33	159	06.6	06.4	06.2	06.2	06.2	S. 11	00.1	00.2	00.2	00.3	00.3	00.3
2.2	ζ Ursæ Majoris	159	19.5	19.2	19.0	18.9	18.9	19.1	N. 55	04.9	04.9	04.9	05.0	05.2	05.3
2.9	ι Centauri	160	17.3	17.1	16.9	16.8	16.8	16.8	S. 36	32.9	33.0	33.1	33.2	33.3	33.3
3.0	ε Virginis	164	50.4	50.2	50.0	50.0	50.0	50.0	N. 11	07.3	07.3	07.3	07.3	07.3	07.4
2.9	α Canum Venat.	166	21.1	20.9	20.7	20.6	20.7	20.7	N. 38	28.8	28.8	28.9	28.9	29.0	29.1
1.7	ε Ursæ Majoris 32	166	49.6	49.3	49.1	49.0	49.1	49.3	N. 56	07.3	07.3	07.4	07.6	07.7	07.7
1.5	β Crucis	168	31.6	31.3	31.1	31.0	31.0	31.2	S. 59	31.0	31.1	31.3	31.4	31.5	31.6
2.9	γ Virginis	169	58.6	58.4	58.3	58.2	58.2	58.3	S. 1	16.9	17.0	17.0	17.0	17.0	17.0
2.4	γ Centauri	170	03.1	02.8	02.6	02.6	02.7	02.7	S. 48	47.2	47.3	47.5	47.6	47.7	47.8
2.9	α Muscæ	171	10.4	09.9	09.7	09.6	09.7	10.0	S. 68	57.7	57.8	58.0	58.1	58.3	58.4
2.8	β Corvi	171	48.6	48.4	48.3	48.2	48.2	48.3	S. 23	13.5	13.6	13.7	13.8	13.8	13.8
1.6	γ Crucis	31	172	38.5	38.2	38.0	38.0	38.2	S. 56	56.2	56.3	56.5	56.6	56.8	56.8
1.1	α Crucis	30	173	47.1	46.7	46.5	46.5	46.6	S. 62	55.4	55.6	55.8	55.9	56.1	56.1
2.8	γ Corvi	29	176	26.8	26.6	26.5	26.4	26.5	S. 17	22.2	22.3	22.4	22.5	22.5	22.5
2.9	δ Centauri	178	18.8	18.5	18.4	18.4	18.5	18.6	S. 50	32.8	33.0	33.1	33.3	33.4	33.4
2.5	γ Ursæ Majoris	181	56.4	56.2	56.0	56.0	56.1	56.3	N. 53	51.8	51.8	51.9	52.0	52.1	52.1
2.2	β Leonis	28	183	07.6	07.4	07.3	07.3	07.4	N. 14	44.6	44.5	44.5	44.6	44.6	44.6
2.6	δ Leonis	191	52.8	52.6	52.5	52.6	52.6	52.7	N. 20	41.5	41.5	41.5	41.5	41.6	41.6
3.2	ψ Ursæ Majoris	193	00.7	00.4	00.4	00.4	00.5	00.6	N. 44	39.8	39.9	39.9	40.0	40.1	40.1
2.0	α Ursæ Majoris	27	194	31.9	31.6	31.5	31.6	31.8	N. 61	54.9	55.0	55.1	55.2	55.3	55.3
2.4	β Ursæ Majoris	194	59.7	59.4	59.3	59.4	59.6	59.8	N. 56	32.7	32.8	32.9	33.0	33.1	33.1
2.8	μ Velorum*	198	38.3	38.2	38.1	38.2	38.3	38.5	S. 49	15.2	15.4	15.5	15.7	15.7	15.7
3.0	θ Carinæ*†	199	32.1	31.9	31.8	32.0	32.2	32.5	S. 64	13.7	13.9	14.0	14.2	14.3	14.3
2.3	γ Leonis	205	25.7	25.5	25.5	25.6	25.6	25.7	N. 19	59.9	59.9	59.9	59.9	59.9	60.0
1.3	α Leonis	26	208	18.8	18.7	18.7	18.8	18.9	N. 12	07.1	07.1	07.1	07.1	07.1	07.1
3.1	ε Leonis	213	58.2	58.1	58.1	58.1	58.2	58.3	N. 23	55.0	55.0	55.0	55.1	55.1	55.1
3.0	N Velorum	217	25.5	25.4	25.5	25.6	25.9	26.1	S. 56	53.6	53.8	54.0	54.1	54.1	54.1
2.2	α Hydræ	25	218	28.8	28.7	28.7	28.8	28.9	S. 8	31.4	31.5	31.5	31.5	31.5	31.5
2.6	κ Velorum*	219	42.4	42.3	42.4	42.6	42.8	43.0	S. 54	52.5	52.7	52.8	52.9	53.0	52.9
2.2	ι Carinæ*	220	55.7	55.6	55.7	56.0	56.2	56.5	S. 59	08.5	08.7	08.9	09.0	09.0	09.0
1.8	β Carinæ*	24	221	46.4	46.4	46.6	46.9	47.4	S. 69	35.2	35.3	35.5	35.6	35.7	35.6
2.2	λ Velorum*	23	223	16.9	16.8	16.9	17.0	17.3	S. 43	18.3	18.4	18.6	18.7	18.7	18.6
3.1	ι Ursæ Majoris	225	43.0	42.9	42.9	43.1	43.2	43.3	N. 48	09.9	09.9	10.0	10.1	10.1	10.1
2.0	δ Velorum*	229	01.9	01.9	02.0	02.2	02.4	02.6	S. 54	35.5	35.7	35.8	35.9	35.9	35.9
1.7	ε Carinæ*	22	234	31.3	31.4	31.5	31.8	32.1	S. 59	24.4	24.6	24.7	24.8	24.8	24.7
1.9	γ Velorum*	237	51.0	51.0	51.1	51.3	51.5	51.6	S. 47	14.6	14.7	14.8	14.9	14.9	14.8
2.9	ρ Puppis*	238	26.3	26.3	26.4	26.5	26.6	26.7	S. 24	12.8	12.9	13.0	13.0	13.0	12.9
2.3	ζ Puppis*	239	22.2	22.2	22.3	22.5	22.7	22.8	S. 39	54.8	55.0	55.1	55.1	55.1	55.0
1.2	β Geminorum	21	244	08.3	08.2	08.3	08.4	08.6	N. 28	06.2	06.2	06.3	06.3	06.3	06.3
0.5	α Canis Minoris	20	245	34.4	34.4	34.5	34.6	34.7	N. 5	18.4	18.4	18.4	18.4	18.4	18.4

* Formerly Argus

† Not suitable for use with H.O. 214 (H.D. 486)

Mag.	Name and No.	S.H.A.							Declination						
		JULY	AUG.	SEPT.	OCT.	NOV.	DEC.		JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	
3.1	γ Ursæ Minoris †	129	47.8	48.3	48.8	49.2	49.3	49.2	N. 71	56.7	56.7	56.6	56.5	56.3	56.1
3.1	γ Trianguli Aust.	130	59.2	59.5	59.8	60.0	60.0	59.7	S. 68	34.5	34.5	34.5	34.4	34.2	34.1
2.7	β Libræ	131	09.4	09.5	09.6	09.6	09.6	09.4	S. 9	16.4	16.4	16.4	16.4	16.4	16.5
2.8	β Lupi	135	52.0	52.1	52.2	52.3	52.2	52.0	S. 43	01.1	01.0	01.0	00.9	00.9	00.8
2.2	Kochab 40	137	17.6	18.1	18.7	19.1	19.1	18.9	N. 74	17.0	17.0	16.9	16.7	16.6	16.4
2.9	Zubenelgenubi 39	137	42.0	42.1	42.2	42.3	42.2	42.0	S. 15	55.1	55.1	55.1	55.1	55.1	55.1
2.6	ε Bootis	139	05.0	05.1	05.2	05.2	05.2	05.1	N. 27	12.2	12.2	12.2	12.1	12.0	11.8
2.9	α Lupi	140	01.5	01.6	01.8	01.8	01.8	01.5	S. 47	15.8	15.8	15.7	15.7	15.6	15.5
0.1	Rigil Kent. 38	140	37.1	37.3	37.5	37.6	37.5	37.2	S. 60	42.9	42.9	42.8	42.7	42.6	42.5
2.6	η Centauri	141	36.5	36.6	36.7	36.8	36.7	36.5	S. 42	01.8	01.8	01.7	01.7	01.6	01.6
3.0	γ Bootis	142	17.0	17.1	17.3	17.3	17.3	17.1	N. 38	26.6	26.6	26.5	26.4	26.3	26.1
0.2	Arcturus 37	146	25.8	25.9	26.0	26.0	26.0	25.8	N. 19	20.5	20.5	20.5	20.4	20.3	20.1
2.3	Menkent 36	148	46.8	46.9	47.0	47.0	46.9	46.7	S. 36	13.5	13.5	13.4	13.4	13.3	13.3
0.9	Hadar 35	149	35.2	35.5	35.6	35.7	35.6	35.2	S. 60	14.0	13.9	13.9	13.8	13.6	13.6
3.1	ζ Centauri	151	35.6	35.7	35.9	35.9	35.8	35.5	S. 47	08.7	08.6	08.5	08.5	08.4	08.4
2.8	η Bootis	151	41.4	41.5	41.6	41.6	41.5	41.3	N. 18	33.1	33.1	33.0	33.0	32.9	32.7
1.9	Alkaid 34	153	24.7	24.8	25.0	25.0	24.9	24.7	N. 49	28.1	28.1	28.0	27.8	27.6	27.5
2.6	ε Centauri †	155	30.9	31.1	31.2	31.2	31.1	30.8	S. 53	19.0	19.0	18.9	18.8	18.7	18.7
1.2	Spica 33	159	06.2	06.3	06.4	06.3	06.2	06.0	S. 11	00.3	00.2	00.2	00.2	00.2	00.3
2.2	Mizar	159	19.3	19.5	19.6	19.6	19.5	19.2	N. 55	05.3	05.2	05.1	05.0	04.8	04.6
2.9	ι Centauri	160	16.9	17.0	17.1	17.1	16.9	16.7	S. 36	33.3	33.3	33.2	33.2	33.1	33.1
3.0	ε Virginis	164	50.1	50.2	50.2	50.2	50.0	49.8	N. 11	07.4	07.4	07.4	07.3	07.2	07.1
2.9	Cor Caroli	166	20.9	21.0	21.0	21.0	20.9	20.6	N. 38	29.1	29.1	29.0	28.9	28.7	28.6
1.7	Alioth 32	166	49.5	49.6	49.8	49.7	49.6	49.3	N. 56	07.8	07.7	07.6	07.4	07.2	07.1
1.5	Mimosa	168	31.4	31.6	31.7	31.7	31.4	31.1	S. 59	31.6	31.6	31.5	31.3	31.3	31.2
2.9	γ Virginis	169	58.3	58.4	58.4	58.2	58.0		S. 1	17.0	16.9	16.9	17.0	17.0	17.1
2.4	Muhlifain	170	02.8	03.0	03.0	02.8	02.5		S. 48	47.8	47.7	47.6	47.5	47.5	47.5
2.9	α Muscæ	171	10.3	10.6	10.8	10.7	10.4	09.9	S. 68	58.4	58.3	58.2	58.1	58.0	58.0
2.8	β Corvi	171	48.4	48.4	48.5	48.4	48.2	48.0	S. 23	13.8	13.8	13.7	13.7	13.7	13.8
1.6	Gacrux 31	172	38.4	38.5	38.6	38.6	38.3	38.0	S. 56	56.8	56.8	56.7	56.5	56.5	56.5
1.1	Acrux 30	173	47.0	47.2	47.3	47.3	47.0	46.6	S. 62	56.1	56.0	55.9	55.8	55.7	55.7
2.8	Gienah 29	176	26.6	26.6	26.7	26.6	26.4	26.2	S. 17	22.4	22.4	22.4	22.3	22.4	22.4
2.9	δ Centauri	178	18.7	18.9	18.9	18.8	18.6	18.3	S. 50	33.4	33.3	33.2	33.1	33.1	33.1
2.5	Phecda	181	56.5	56.6	56.6	56.5	56.3	55.9	N. 53	52.1	52.0	51.9	51.7	51.6	51.4
2.2	Denebola 28	183	07.5	07.5	07.5	07.4	07.2	07.0	N. 14	44.7	44.6	44.6	44.5	44.4	44.3
2.6	δ Leonis	191	52.8	52.8	52.7	52.6	52.4	52.2	N. 20	41.6	41.6	41.5	41.4	41.3	41.2
3.2	ψ Ursæ Majoris	193	00.7	00.8	00.7	00.6	00.3	00.0	N. 44	40.1	40.0	39.9	39.7	39.6	39.5
2.0	Dubhe 27	194	32.2	32.3	32.2	32.0	31.7	31.3	N. 61	55.2	55.1	54.9	54.8	54.6	54.5
2.4	Merak	194	59.9	60.0	59.9	59.7	59.4	59.1	N. 56	33.0	32.9	32.8	32.6	32.5	32.4
2.8	μ Velorum*	198	38.6	38.7	38.7	38.5	38.2	37.9	S. 49	15.7	15.5	15.4	15.3	15.3	15.4
3.0	θ Carinæ*†	199	32.8	32.9	32.9	32.7	32.3	31.9	S. 64	14.2	14.1	14.0	13.9	13.8	13.9
2.3	Algeiba	205	25.7	25.7	25.7	25.5	25.3	25.0	N. 19	60.0	59.9	59.9	59.8	59.7	59.6
1.3	Regulus 26	208	18.9	18.9	18.8	18.6	18.4	18.2	N. 12	07.2	07.2	07.1	07.1	07.0	06.9
3.1	ε Leonis	213	58.3	58.3	58.2	58.0	57.8	57.5	N. 23	55.1	55.1	55.0	54.9	54.8	54.8
3.0	N Velorum	217	26.3	26.3	26.2	25.9	25.6	25.2	S. 56	54.0	53.9	53.7	53.7	53.7	53.8
2.2	Alphard 25	218	28.9	28.9	28.8	28.6	28.4	28.1	S. 8	31.4	31.4	31.3	31.4	31.4	31.5
2.6	κ Velorum*	219	43.1	43.1	43.0	42.7	42.4	42.1	S. 54	52.8	52.7	52.6	52.5	52.5	52.6
2.2	ι Carinæ*	220	56.6	56.6	56.5	56.2	55.8	55.5	S. 59	08.8	08.7	08.6	08.5	08.5	08.6
1.8	Miaplacidus 24	221	48.0	48.1	47.9	47.5	47.0	46.5	S. 69	35.5	35.4	35.2	35.1	35.2	35.3
2.2	Suhail 23	223	17.4	17.3	17.2	17.0	16.7	16.4	S. 43	18.5	18.4	18.3	18.2	18.3	18.4
3.1	ι Ursæ Majoris	225	43.3	43.2	43.1	42.8	42.4	42.1	N. 48	10.0	09.9	09.8	09.7	09.6	09.6
2.0	δ Velorum*	229	02.7	02.7	02.5	02.2	01.9	01.6	S. 54	35.7	35.6	35.5	35.4	35.5	35.6
1.7	Avior 22	234	32.4	32.4	32.2	31.8	31.5	31.2	S. 59	24.6	24.4	24.3	24.3	24.3	24.5
1.9	γ Velorum*	237	51.6	51.6	51.4	51.1	50.8	50.6	S. 47	14.7	14.5	14.4	14.4	14.4	14.6
2.9	ρ Puppis*	238	26.7	26.6	26.4	26.2	26.0	25.8	S. 24	12.8	12.7	12.6	12.6	12.7	12.8
2.3	ζ Puppis*	239	22.8	22.7	22.5	22.3	22.0	21.8	S. 39	54.9	54.7	54.6	54.6	54.7	54.8
1.2	Pollux 21	244	08.5	08.4	08.2	07.9	07.6	07.4	N. 28	06.3	06.2	06.2	06.1	06.1	06.1
0.5	Procyon 20	245	34.7	34.5	34.4	34.1	33.9	33.7	N. 5	18.4	18.5	18.5	18.4	18.4	18.3

* Formerly Argus

† Not suitable for use with H.O. 214 (H.D. 486)

Mag.	Name and No.	S.H.A.							Declination						
			JAN.	FEB.	MAR.	APR.	MAY	JUNE		JAN.	FEB.	MAR.	APR.	MAY	JUNE
1.6	α Geminorum	246	50.2	50.2	50.3	50.4	50.5	50.5	N. 31	57.6	57.6	57.6	57.7	57.6	57.6
3.3	σ Puppis*	247	55.9	55.9	56.1	56.3	56.4	56.5	S. 43	14.2	14.3	14.4	14.4	14.4	14.3
3.1	β Canis Minoris	248	37.6	37.6	37.7	37.8	37.9	37.9	N. 8	21.3	21.2	21.2	21.2	21.3	21.3
2.4	η Canis Majoris	249	16.6	16.6	16.8	16.9	17.0	17.1	S. 29	14.4	14.6	14.6	14.6	14.6	14.5
2.7	π Puppis*	250	58.9	58.9	59.1	59.2	59.4	59.4	S. 37	02.4	02.5	02.6	02.6	02.6	02.5
2.0	δ Canis Majoris	253	12.7	12.7	12.8	13.0	13.1	13.1	S. 26	20.5	20.6	20.7	20.7	20.7	20.6
3.1	ω Canis Majoris	254	33.7	33.7	33.9	34.0	34.1	34.1	S. 23	47.2	47.3	47.3	47.3	47.3	47.2
1.6	ϵ Canis Majoris 19	255	38.5	38.6	38.7	38.9	39.0	39.0	S. 28	55.7	55.8	55.9	55.9	55.8	55.7
2.8	τ Puppis*	257	42.1	42.2	42.4	42.6	42.8	42.9	S. 50	34.6	34.7	34.8	34.8	34.7	34.6
-1.6	α Canis Majoris 18	259	03.0	03.0	03.1	03.3	03.3	03.4	S. 16	40.3	40.4	40.4	40.4	40.4	40.3
1.9	γ Geminorum	261	00.8	00.9	00.9	01.1	01.1	01.1	N. 16	25.7	25.7	25.7	25.7	25.7	25.7
-0.9	α Carinae*	264	10.6	10.7	10.9	11.2	11.4	11.5	S. 52	40.7	40.8	40.9	40.8	40.8	40.6
2.0	θ Canis Majoris	264	39.7	39.7	39.8	40.0	40.0	40.0	S. 17	56.3	56.4	56.4	56.4	56.4	56.3
2.7	β Aurigæ	270	35.5	35.6	35.7	35.8	35.9	35.8	N. 37	12.9	12.9	13.0	12.9	12.9	12.9
2.1	β Aurigæ	270	40.7	40.8	40.9	41.1	41.2	41.1	N. 44	57.0	57.0	57.0	57.0	57.0	56.9
Var. ‡	α Orionis 16	271	37.3	37.3	37.4	37.6	37.6	37.6	N. 7	24.3	24.2	24.2	24.2	24.3	24.3
2.2	κ Orionis	273	25.4	25.5	25.6	25.7	25.8	25.7	S. 9	40.7	40.8	40.8	40.8	40.7	40.6
1.9	ζ Orionis	275	11.8	11.9	12.0	12.1	12.1	12.1	S. 1	57.4	57.4	57.4	57.4	57.4	57.3
2.8	α Columbæ	275	21.8	21.9	22.0	22.2	22.3	22.3	S. 34	05.4	05.5	05.5	05.5	05.4	05.2
3.0	ζ Tauri	276	02.8	02.9	03.0	03.1	03.1	03.1	N. 21	07.7	07.7	07.7	07.7	07.7	07.7
1.8	ϵ Orionis 15	276	20.1	20.2	20.3	20.4	20.4	20.4	S. 1	13.1	13.2	13.2	13.2	13.2	13.1
2.9	ι Orionis	276	31.0	31.0	31.1	31.2	31.3	31.3	S. 5	55.7	55.7	55.7	55.7	55.7	55.6
2.7	α Leporis	277	09.3	09.3	09.4	09.6	09.6	09.6	S. 17	50.6	50.6	50.7	50.6	50.6	50.5
2.5	δ Orionis	277	23.4	23.4	23.5	23.6	23.7	23.6	S. 0	19.2	19.2	19.2	19.2	19.2	19.1
3.0	β Leporis	278	15.9	16.0	16.1	16.3	16.3	16.3	S. 20	47.0	47.0	47.1	47.0	47.0	46.8
1.8	β Tauri 14	278	54.7	54.8	54.9	55.0	55.1	55.0	N. 28	35.2	35.2	35.2	35.2	35.1	35.1
1.7	γ Orionis	279	07.7	07.8	07.9	08.0	08.0	08.0	N. 6	19.5	19.5	19.4	19.5	19.5	19.5
0.2	α Aurigæ 13	281	23.7	23.8	23.9	24.1	24.1	24.0	N. 45	58.3	58.4	58.4	58.4	58.3	58.2
0.3	β Orionis 11	281	44.0	44.1	44.2	44.3	44.3	44.3	S. 8	14.1	14.2	14.2	14.2	14.1	14.0
2.9	β Eridani	283	24.9	24.9	25.0	25.1	25.2	25.1	S. 5	07.4	07.5	07.5	07.5	07.4	07.3
2.9	ι Aurigæ †	286	15.1	15.2	15.3	15.4	15.5	15.4	N. 33	07.3	07.4	07.4	07.3	07.3	07.3
1.1	α Tauri 10	291	27.7	27.8	27.9	28.0	28.0	27.9	N. 16	27.1	27.0	27.0	27.0	27.0	27.1
3.2	γ Eridani	300	51.1	51.1	51.3	51.3	51.3	51.2	S. 13	35.7	35.8	35.7	35.7	35.6	35.5
3.0	ϵ Persei	301	03.3	03.4	03.6	03.6	03.6	03.5	N. 39	55.6	55.6	55.6	55.5	55.5	55.4
2.9	ζ Persei	301	57.1	57.2	57.4	57.4	57.4	57.3	N. 31	47.8	47.8	47.8	47.7	47.7	47.7
3.0	η Tauri	303	35.2	35.3	35.4	35.5	35.5	35.4	N. 24	00.8	00.8	00.8	00.8	00.8	00.8
1.9	α Persei 9	309	28.4	28.5	28.7	28.8	28.7	28.6	N. 49	45.4	45.4	45.4	45.3	45.2	45.2
Var. §	β Persei †	313	27.7	27.9	28.0	28.1	28.0	27.8	N. 40	50.5	50.5	50.5	50.4	50.3	50.3
2.8	α Ceti 8	314	50.0	50.1	50.2	50.3	50.2	50.1	N. 3	58.2	58.2	58.2	58.2	58.3	58.3
3.1	θ Eridani 7	315	43.5	43.6	43.8	43.9	43.8	43.7	S. 40	25.8	25.8	25.8	25.7	25.5	25.4
3.1	β Trianguli	328	04.6	04.8	04.9	04.9	04.8	04.5	N. 34	50.7	50.7	50.6	50.6	50.5	50.5
2.2	α Arietis 6	328	38.7	38.7	38.8	38.8	38.7	38.5	N. 23	19.2	19.1	19.1	19.1	19.0	19.1
2.2	γ Andromedæ	329	30.2	30.3	30.4	30.4	30.3	30.1	N. 42	11.2	11.1	11.1	11.0	10.9	10.9
2.1	α Ursæ Minoris †	329	27.7	27.4	45.0	48.3	44.9	37.1	N. 89	07.7	07.7	07.6	07.5	07.3	07.2
3.0	α Hydri	330	32.8	33.1	33.3	33.4	33.3	33.0	S. 61	43.4	43.4	43.3	43.1	42.9	42.8
2.7	β Arietis	331	46.2	46.3	46.3	46.3	46.2	46.0	N. 20	39.6	39.5	39.5	39.5	39.5	39.5
0.6	α Eridani 5	335	51.3	51.6	51.7	51.8	51.7	51.4	S. 57	23.9	23.8	23.7	23.5	23.3	23.2
2.8	δ Cassiopeia	339	03.7	03.9	04.0	04.0	03.8	03.5	N. 60	04.8	04.8	04.7	04.6	04.5	04.4
2.4	β Andromedæ	343	00.3	00.4	00.4	00.4	00.2	00.0	N. 35	27.6	27.5	27.5	27.4	27.4	27.4
Var.	γ Cassiopeia	346	18.0	18.2	18.4	18.3	18.1	17.7	N. 60	33.3	33.2	33.1	33.0	32.9	32.9
2.2	β Ceti 4	349	29.5	29.6	29.6	29.5	29.4	29.2	S. 18	09.5	09.5	09.4	09.4	09.2	09.1
2.5	α Cassiopeia 3	350	19.3	19.5	19.6	19.5	19.3	18.9	N. 56	22.3	22.3	22.2	22.0	22.0	22.0
2.4	α Phœnicis 2	353	48.6	48.7	48.8	48.7	48.5	48.3	S. 42	28.7	28.6	28.5	28.4	28.2	28.1
2.9	β Hydri †	353	57.5	58.0	58.2	58.1	57.7	57.0	S. 77	26.0	25.9	25.7	25.5	25.3	25.2
2.9	γ Pegasi	357	05.6	05.6	05.6	05.6	05.4	05.2	N. 15	00.7	00.7	00.7	00.6	00.7	00.8
2.4	β Cassiopeia	358	07.8	07.9	08.0	07.9	07.6	07.3	N. 58	59.0	58.9	58.8	58.7	58.6	58.6
2.2	α Andromedæ 1	358	18.5	18.6	18.6	18.5	18.3	18.1	N. 28	55.3	55.2	55.1	55.1	55.1	55.2

* Formerly Argus

‡ 0.1—1.2

§ 2.3—3.5

|| Irregular variable; 1966 mag. 2.5

† Not suitable for use with H.O. 214 (H.D. 486)

Mag.	Name and No.	S.H.A.							Declination						
		JULY	AUG.	SEPT.	OCT.	NOV.	DEC.		JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	
1.6	<i>Castor</i>	246	50.4	50.3	50.1	49.8	49.5	49.3	N. 31	57.6	57.6	57.5	57.5	57.4	57.4
3.3	α <i>Puppis*</i>	247	56.5	56.4	56.2	56.0	55.7	55.5	S. 43	14.1	14.0	13.9	13.9	14.0	14.1
3.1	β <i>Canis Minoris</i>	248	37.8	37.7	37.5	37.3	37.0	36.8	N. 8	21.3	21.3	21.4	21.3	21.3	21.2
2.4	η <i>Canis Majoris</i>	249	17.0	16.9	16.7	16.5	16.3	16.1	S. 29	14.4	14.3	14.2	14.2	14.3	14.4
2.7	π <i>Puppis*</i>	250	59.4	59.3	59.1	58.8	58.6	58.4	S. 37	02.3	02.2	02.1	02.1	02.2	02.3
2.0	<i>Wezen</i>	253	13.1	12.9	12.7	12.5	12.3	12.1	S. 26	20.4	20.3	20.3	20.3	20.4	20.5
3.1	$\circ$ <i>Canis Majoris</i>	254	34.1	33.9	33.7	33.5	33.3	33.1	S. 23	47.1	47.0	46.9	46.9	47.0	47.1
1.6	<i>Adhara</i>	19 255	38.9	38.8	38.6	38.4	38.1	38.0	S. 28	55.6	55.5	55.4	55.4	55.5	55.6
2.8	τ <i>Puppis*</i>	257	42.9	42.7	42.5	42.2	41.9	41.7	S. 50	34.5	34.3	34.2	34.2	34.3	34.5
-1.6	<i>Sirius</i>	18 259	03.3	03.1	02.9	02.7	02.5	02.3	S. 16	40.2	40.1	40.1	40.1	40.2	40.2
1.9	<i>Alhena</i>	261	01.0	00.8	00.6	00.4	00.2	00.0	N. 16	25.8	25.8	25.8	25.8	25.7	25.7
-0.9	<i>Canopus</i>	17 264	11.4	11.2	10.9	10.6	10.4	10.2	S. 52	40.5	40.3	40.2	40.3	40.4	40.5
2.0	<i>Mirzam</i>	264	40.0	39.8	39.6	39.4	39.2	39.0	S. 17	56.2	56.1	56.0	56.0	56.1	56.2
2.7	θ <i>Aurigæ</i>	270	35.7	35.5	35.2	34.9	34.6	34.4	N. 37	12.8	12.8	12.8	12.8	12.8	12.9
2.1	<i>Menkalinan</i>	270	41.0	40.7	40.4	40.1	39.8	39.6	N. 44	56.9	56.8	56.8	56.8	56.8	56.9
Var. ‡	<i>Betelgeuse</i>	16 271	37.5	37.3	37.0	36.8	36.6	36.5	N. 7	24.4	24.4	24.4	24.4	24.4	24.3
2.2	κ <i>Orionis</i>	273	25.6	25.4	25.2	25.0	24.8	24.7	S. 9	40.5	40.5	40.4	40.4	40.5	40.6
1.9	<i>Alnitak</i>	275	12.0	11.8	11.5	11.3	11.1	11.0	S. 1	57.2	57.2	57.1	57.2	57.2	57.3
2.8	<i>Phact</i>	275	22.2	22.0	21.7	21.5	21.3	21.2	S. 34	05.1	05.0	04.9	05.0	05.1	05.2
3.0	ζ <i>Tauri</i>	276	02.9	02.7	02.5	02.2	02.0	01.9	N. 21	07.7	07.7	07.7	07.7	07.7	07.7
1.8	<i>Alnilam</i>	15 276	20.3	20.1	19.9	19.6	19.4	19.3	S. 1	13.0	12.9	12.9	12.9	13.0	13.0
2.9	ι <i>Orionis</i>	276	31.1	30.9	30.7	30.5	30.3	30.2	S. 5	55.5	55.4	55.4	55.4	55.5	55.5
2.7	α <i>Leporis</i>	277	09.5	09.3	09.1	08.8	08.7	08.5	S. 17	50.3	50.3	50.2	50.2	50.3	50.4
2.5	δ <i>Orionis</i>	277	23.5	23.3	23.1	22.9	22.7	22.6	S. 0	19.0	19.0	18.9	18.9	19.0	19.1
3.0	β <i>Leporis</i>	278	16.2	16.0	15.8	15.5	15.4	15.2	S. 20	46.7	46.6	46.6	46.6	46.7	46.8
1.8	<i>Elnath</i>	14 278	54.8	54.6	54.3	54.1	53.9	53.7	N. 28	35.1	35.1	35.1	35.2	35.2	35.2
1.7	<i>Bellatrix</i>	13 279	07.8	07.6	07.4	07.2	07.0	06.8	N. 6	19.6	19.6	19.7	19.7	19.6	19.6
0.2	<i>Capella</i>	12 281	23.8	23.5	23.2	22.9	22.6	22.5	N. 45	58.2	58.2	58.2	58.2	58.3	58.3
0.3	<i>Rigel</i>	11 281	44.2	44.0	43.7	43.5	43.3	43.2	S. 8	13.9	13.8	13.8	13.8	13.9	14.0
2.9	β <i>Eridani</i>	283	25.0	24.8	24.6	24.3	24.2	24.1	S. 5	07.2	07.2	07.1	07.1	07.2	07.3
2.9	ι <i>Aurigæ †</i>	286	15.2	14.9	14.7	14.4	14.2	14.1	N. 33	07.3	07.3	07.3	07.3	07.4	07.4
1.1	<i>Aldebaran</i>	10 291	27.7	27.5	27.2	27.0	26.8	26.7	N. 16	27.1	27.2	27.2	27.2	27.2	27.2
3.2	γ <i>Eridani</i>	300	51.1	50.8	50.6	50.4	50.3	50.2	S. 13	35.4	35.3	35.3	35.3	35.4	35.5
3.0	ϵ <i>Persei</i>	301	03.2	02.9	02.7	02.4	02.2	02.2	N. 39	55.4	55.5	55.5	55.6	55.7	55.7
2.9	ζ <i>Persei</i>	301	57.1	56.8	56.5	56.3	56.1	56.1	N. 31	47.7	47.8	47.8	47.9	47.9	48.0
3.0	<i>Alcyone</i>	303	35.1	34.9	34.6	34.4	34.3	34.2	N. 24	00.8	00.9	00.9	01.0	01.0	01.0
1.9	<i>Mirfak</i>	9 309	28.3	27.9	27.6	27.4	27.2	27.1	N. 49	45.2	45.2	45.3	45.4	45.5	45.6
Var. §	<i>Algol †</i>	313	27.5	27.2	27.0	26.8	26.6	26.6	N. 40	50.3	50.4	50.5	50.6	50.7	50.7
2.8	<i>Menkar</i>	8 314	49.9	49.6	49.4	49.2	49.1	49.1	N. 3	58.4	58.5	58.6	58.6	58.6	58.5
3.1	<i>Acamar</i>	7 315	43.5	43.2	42.9	42.8	42.7	42.7	S. 40	25.2	25.2	25.2	25.2	25.4	25.5
3.1	β <i>Trianguli</i>	328	04.3	04.0	03.8	03.6	03.5	03.6	N. 34	50.6	50.7	50.8	50.9	51.0	51.0
2.2	<i>Hamal</i>	6 328	38.3	38.0	37.8	37.7	37.6	37.6	N. 23	19.2	19.2	19.3	19.4	19.4	19.5
2.2	<i>Almak</i>	329	29.8	29.5	29.3	29.1	29.0	29.1	N. 42	11.0	11.1	11.2	11.3	11.4	11.5
2.1	<i>Polaris †</i>	329	26.6	15.6	06.5	00.8	00.2	05.1	N. 89	07.2	07.3	07.4	07.6	07.8	07.9
3.0	α <i>Hydri</i>	330	32.7	32.3	32.0	31.8	31.8	32.0	S. 61	42.7	42.6	42.7	42.8	43.0	43.1
2.7	<i>Sheratan</i>	331	45.8	45.5	45.3	45.2	45.2	45.2	N. 20	39.6	39.7	39.8	39.8	39.9	39.9
0.6	<i>Achernar</i>	5 335	51.1	50.7	50.5	50.3	50.4	50.5	S. 57	23.1	23.1	23.1	23.2	23.4	23.5
2.8	<i>Ruchbah</i>	339	03.1	02.7	02.4	02.3	02.2	02.4	N. 60	04.5	04.6	04.7	04.9	05.0	05.1
2.4	<i>Mirach</i>	342	59.7	59.5	59.3	59.2	59.2	59.2	N. 35	27.5	27.6	27.7	27.8	27.9	28.0
Var.	γ <i>Cassiopeia</i>	346	17.3	16.9	16.7	16.6	16.6	16.8	N. 60	32.9	33.1	33.2	33.4	33.5	33.6
2.2	<i>Diphda</i>	4 349	28.9	28.7	28.6	28.5	28.5	28.6	S. 18	09.0	09.0	08.9	09.0	09.0	09.1
2.5	<i>Schedar</i>	3 350	18.6	18.3	18.0	18.0	18.0	18.2	N. 56	22.1	22.2	22.3	22.5	22.6	22.7
2.4	<i>Ankaa</i>	2 353	48.0	47.7	47.6	47.5	47.6	47.7	S. 42	28.0	28.0	28.0	28.1	28.2	28.3
2.9	β <i>Hydri †</i>	353	56.2	55.5	55.1	55.0	55.4	56.0	S. 77	25.2	25.2	25.3	25.5	25.6	25.7
2.9	<i>Algenib</i>	357	04.9	04.7	04.6	04.6	04.6	04.6	N. 15	00.9	01.0	01.1	01.1	01.1	01.1
2.4	<i>Caph</i>	358	06.9	06.6	06.4	06.4	06.5	06.7	N. 58	58.7	58.8	59.0	59.2	59.3	59.4
2.2	<i>Alpheratz</i>	1 358	17.8	17.6	17.5	17.4	17.5	17.5	N. 28	55.3	55.4	55.5	55.6	55.7	55.7

* Formerly Argus

‡ 0.1—1.2

§ 2.3—3.5

|| Irregular variable; 1966 mag. 2.5

† Not suitable for use with H.O. 214 (H.D. 486)

L.H.A. ARIES	0°— 9°	10°— 19°	20°— 29°	30°— 39°	40°— 49°	50°— 59°	60°— 69°	70°— 79°	80°— 89°	90°— 99°	100°— 109°	110°— 119°
	a_0	a_0	a_0	a_0	a_0	a_0	a_0	a_0	a_0	a_0	a_0	a_0
0	0 13.8	0 09.8	0 07.3	0 06.4	0 07.1	0 09.4	0 13.3	0 18.5	0 25.0	0 32.5	0 40.8	0 49.7
1	13.3	09.5	07.1	06.4	07.3	09.8	13.8	19.1	25.7	33.3	41.7	50.6
2	12.9	09.2	07.0	06.4	07.5	10.1	14.2	19.7	26.4	34.1	42.6	51.5
3	12.4	08.9	06.9	06.4	07.7	10.4	14.7	20.4	27.2	34.9	43.4	52.4
4	12.0	08.6	06.7	06.5	07.9	10.8	15.2	21.0	27.9	35.8	44.3	53.3
5	0 11.6	0 08.4	0 06.6	0 06.6	0 08.1	0 11.2	0 15.8	0 21.6	0 28.6	0 36.6	0 45.2	0 54.2
6	11.2	08.1	06.6	06.6	08.3	11.6	16.3	22.3	29.4	37.4	46.1	55.1
7	10.8	07.9	06.5	06.7	08.6	12.0	16.8	22.9	30.2	38.3	47.0	56.0
8	10.5	07.7	06.5	06.8	08.9	12.4	17.4	23.6	30.9	39.1	47.9	57.0
9	10.1	07.5	06.4	07.0	09.1	12.8	18.0	24.3	31.7	40.0	48.8	57.9
10	0 09.8	0 07.3	0 06.4	0 07.1	0 09.4	0 13.3	0 18.5	0 25.0	0 32.5	0 40.8	0 49.7	0 58.8
Lat.	a_1	a_1	a_1	a_1	a_1	a_1	a_1	a_1	a_1	a_1	a_1	a_1
0	0.5	0.6	0.6	0.6	0.6	0.5	0.5	0.4	0.3	0.2	0.2	0.1
10	.5	.6	.6	.6	.6	.5	.5	.4	.3	.3	.2	.2
20	.5	.6	.6	.6	.6	.5	.5	.4	.4	.3	.3	.3
30	.6	.6	.6	.6	.6	.6	.5	.5	.4	.4	.4	.4
40	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5
45	.6	.6	.6	.6	.6	.6	.6	.6	.5	.5	.5	.5
50	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6
55	.6	.6	.6	.6	.6	.6	.6	.6	.7	.7	.7	.7
60	.6	.6	.6	.6	.6	.6	.7	.7	.7	.8	.8	.8
62	0.7	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9
64	.7	.6	.6	.6	.6	.7	.7	.8	.8	.9	.9	.9
66	.7	.6	.6	.6	.6	.7	.7	.8	.9	0.9	1.0	1.0
68	0.7	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.1
Month	a_2	a_2	a_2	a_2	a_2	a_2	a_2	a_2	a_2	a_2	a_2	a_2
Jan.	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6
Feb.	.6	.6	.7	.7	.7	.7	.8	.8	.8	.8	.8	.8
Mar.	.5	.5	.6	.6	.7	.7	.8	.8	.8	.8	.9	.9
Apr.	0.3	0.4	0.4	0.5	0.5	0.6	0.7	0.7	0.8	0.8	0.9	0.9
May	.2	.3	.3	.3	.4	.5	.5	.6	.6	.7	.8	.8
June	.2	.2	.2	.2	.3	.3	.4	.4	.5	.6	.6	.7
July	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.6
Aug.	.4	.3	.3	.3	.2	.2	.2	.2	.3	.3	.3	.4
Sept.	.6	.5	.4	.4	.3	.3	.3	.2	.2	.2	.3	.3
Oct.	0.7	0.7	0.6	0.6	0.5	0.4	0.4	0.3	0.3	0.2	0.2	0.2
Nov.	0.9	0.9	.8	.7	.7	.6	.5	.4	.4	.3	.3	.2
Dec.	1.0	1.0	0.9	0.9	0.8	0.7	0.7	0.6	0.5	0.4	0.4	0.3
Lat.	AZIMUTH											
0	0.4	0.2	0.1	359.9	359.8	359.6	359.5	359.4	359.3	359.2	359.2	359.1
20	0.4	0.2	0.1	359.9	359.8	359.6	359.5	359.3	359.2	359.2	359.1	359.1
40	0.5	0.3	0.1	359.9	359.7	359.5	359.4	359.2	359.1	359.0	358.9	358.9
50	0.6	0.4	0.1	359.9	359.7	359.4	359.2	359.0	358.9	358.8	358.7	358.6
55	0.7	0.4	0.1	359.9	359.6	359.4	359.1	358.9	358.8	358.6	358.5	358.5
60	0.8	0.5	0.2	359.9	359.6	359.3	359.0	358.8	358.6	358.4	358.3	358.3
65	0.9	0.6	0.2	359.8	359.5	359.1	358.8	358.5	358.3	358.1	358.0	357.9

Latitude = corrected sextant altitude $- 1^\circ + a_0 + a_1 + a_2$

The table is entered with L.H.A. Aries to determine the column to be used; each column refers to a range of 10° . a_0 is taken, with mental interpolation, from the upper table with the units of L.H.A. Aries in degrees as argument; a_1 , a_2 are taken, without interpolation, from the second and third tables with arguments latitude and month respectively. a_0 , a_1 , a_2 are always positive. The final table gives the azimuth of *Polaris*.

POLARIS (POLESTAR) TABLES, 1969

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FOR DETERMINING LATITUDE FROM SEXTANT ALTITUDE AND FOR AZIMUTH

L.H.A. ARIES	120°- 129°	130°- 139°	140°- 149°	150°- 159°	160°- 169°	170°- 179°	180°- 189°	190°- 199°	200°- 209°	210°- 219°	220°- 229°	230°- 239°
	a_0	a_0	a_0	a_0	a_0	a_0	a_0	a_0	a_0	a_0	a_0	a_0
0	0 58.8	1 07.9	1 16.7	1 24.9	1 32.4	1 38.8	1 44.0	1 47.9	1 50.3	1 51.2	1 50.5	1 48.3
1	0 59.7	08.8	17.5	25.7	33.1	39.4	44.5	48.2	50.5	51.2	50.3	48.0
2	1 00.6	09.7	18.4	26.5	33.8	40.0	44.9	48.5	50.6	51.2	50.2	47.6
3	01.5	10.5	19.2	27.3	34.4	40.5	45.4	48.8	50.8	51.2	50.0	47.3
4	02.4	11.4	20.0	28.0	35.1	41.1	45.8	49.1	50.9	51.1	49.8	46.9
5	1 03.3	12.3	20.9	28.8	35.7	41.6	46.2	49.3	51.0	51.0	49.6	46.6
6	04.2	13.2	21.7	29.5	36.4	42.1	46.5	49.6	51.0	51.0	49.3	46.2
7	05.2	14.1	22.5	30.2	37.0	42.6	46.9	49.8	51.1	50.9	49.1	45.8
8	06.1	14.9	23.3	31.0	37.6	43.1	47.3	50.0	51.2	50.8	48.8	45.4
9	07.0	15.8	24.1	31.7	38.2	43.6	47.6	50.2	51.2	50.6	48.6	45.0
10	1 07.9	1 16.7	1 24.9	1 32.4	1 38.8	1 44.0	1 47.9	1 50.3	1 51.2	1 50.5	1 48.3	1 44.5
Lat.	a_1	a_1	a_1	a_1	a_1	a_1	a_1	a_1	a_1	a_1	a_1	a_1
0	0.1	0.2	0.2	0.3	0.4	0.4	0.5	0.6	0.6	0.6	0.6	0.5
10	.2	.2	.3	.3	.4	.5	.5	.6	.6	.6	.6	.5
20	.3	.3	.3	.4	.4	.5	.5	.6	.6	.6	.6	.5
30	.4	.4	.4	.4	.5	.5	.6	.6	.6	.6	.6	.6
40	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6
45	.5	.5	.5	.5	.6	.6	.6	.6	.6	.6	.6	.6
50	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6
55	.7	.7	.7	.7	.6	.6	.6	.6	.6	.6	.6	.6
60	.8	.8	.8	.7	.7	.7	.6	.6	.6	.6	.6	.6
62	0.9	0.9	0.8	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6
64	0.9	0.9	.9	.8	.8	.7	.7	.6	.6	.6	.6	.7
66	1.0	1.0	0.9	.9	.8	.7	.7	.6	.6	.6	.6	.7
68	1.1	1.1	1.0	0.9	0.9	0.8	0.7	0.6	0.6	0.6	0.6	0.7
Month	a_2	a_2	a_2	a_2	a_2	a_2	a_2	a_2	a_2	a_2	a_2	a_2
Jan.	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Feb.	.7	.7	.7	.7	.6	.6	.6	.6	.5	.5	.5	.5
Mar.	.9	.9	.8	.8	.8	.8	.7	.7	.6	.6	.5	.5
Apr.	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.7	0.7	0.6
May	.9	.9	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9	.8	.7
June	.8	.8	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9
July	0.6	0.7	0.7	0.8	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0
Aug.	.5	.5	.6	.6	.7	.8	.8	0.9	0.9	0.9	1.0	1.0
Sept.	.3	.4	.4	.5	.5	.6	.6	.7	.8	.8	0.9	0.9
Oct.	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.5	0.6	0.6	0.7	0.8
Nov.	.2	.2	.2	.2	.2	.2	.3	.3	.4	.5	.5	.6
Dec.	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.5
Lat.	AZIMUTH											
0	359.1	359.2	359.2	359.3	359.4	359.5	359.6	359.8	359.9	0.1	0.2	0.4
20	359.1	359.1	359.2	359.2	359.3	359.5	359.6	359.8	359.9	0.1	0.2	0.4
40	358.9	358.9	359.0	359.1	359.2	359.4	359.5	359.7	359.9	0.1	0.3	0.5
50	358.6	358.7	358.8	358.9	359.0	359.2	359.4	359.6	359.9	0.1	0.3	0.6
55	358.5	358.5	358.6	358.8	358.9	359.1	359.4	359.6	359.9	0.1	0.4	0.6
60	358.3	358.3	358.4	358.6	358.8	359.0	359.3	359.5	359.8	0.1	0.4	0.7
65	357.9	358.0	358.1	358.3	358.6	358.8	359.1	359.5	359.8	0.2	0.5	0.8

ILLUSTRATION

On 1969 January 22 at G.M.T.
 $22^h 17^m 50^s$ in longitude
W. $37^\circ 34'$ the corrected sextant
altitude of *Polaris* was $49^\circ 31'.6$

From the daily pages:

G.H.A. Aries (22^h) 92 04.2
Increment ($17^m 50^s$) 4 28.2
Longitude (west) -37 34
L.H.A. Aries 58 58

Corr. Sext. Alt.

49 31.6

 a_0 (argument $58^\circ 58'$)

0 12.8

 a_1 (lat. 50° approx.)

0.6

 a_2 (January)

0.7

Sum $-1^\circ = \text{Lat.} = 48 45.7$

POLARIS (POLE STAR) TABLES, 1969

FOR DETERMINING LATITUDE FROM SEXTANT ALTITUDE AND FOR AZIMUTH

L.H.A. ARIES	240°- 249°	250°- 259°	260°- 269°	270°- 279°	280°- 289°	290°- 299°	300°- 309°	310°- 319°	320°- 329°	330°- 339°	340°- 349°	350°- 359°
	<i>a</i> ₀	<i>a</i> ₁	<i>a</i> ₀	<i>a</i> ₀	<i>a</i> ₀	<i>a</i> ₀	<i>a</i> ₀	<i>a</i> ₀	<i>a</i> ₀	<i>a</i> ₀	<i>a</i> ₀	<i>a</i> ₀
0	1 44.5	1 39.5	1 33.1	1 25.8	1 17.6	1 08.9	0 59.8	0 50.7	0 41.8	0 33.4	0 25.8	0 19.2
1	44.1	38.9	32.4	25.0	16.7	08.0	58.9	49.8	40.9	32.6	25.1	18.6
2	43.6	38.3	31.7	24.2	15.9	07.1	58.0	48.9	40.1	31.8	24.4	18.0
3	43.2	37.7	31.0	23.4	15.0	06.2	57.0	48.0	39.2	31.0	23.7	17.4
4	42.7	37.1	30.3	22.6	14.2	05.3	56.1	47.1	38.4	30.2	23.0	16.9
5	42.2	36.4	29.6	21.8	13.3	04.3	55.2	46.2	37.5	29.5	22.3	16.3
6	41.6	35.8	28.8	21.0	12.4	03.4	54.3	45.3	36.7	28.7	21.7	15.8
7	41.1	35.2	28.1	20.1	11.5	02.5	53.4	44.4	35.8	28.0	21.0	15.3
8	40.6	34.5	27.3	19.3	10.6	01.6	52.5	43.5	35.0	27.2	20.4	14.8
9	40.0	33.8	26.6	18.4	09.8	00.7	51.6	42.6	34.2	26.5	19.8	14.3
10	39.5	33.1	25.8	17.6	08.9	0 59.8	0 50.7	0 41.8	0 33.4	0 25.8	0 19.2	0 13.8
Lat.	<i>a</i> ₁	<i>a</i> ₁	<i>a</i> ₁	<i>a</i> ₁	<i>a</i> ₁	<i>a</i> ₁	<i>a</i> ₁	<i>a</i> ₁	<i>a</i> ₁	<i>a</i> ₁	<i>a</i> ₁	<i>a</i> ₁
0	0.5	0.4	0.3	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.4	0.4
10	.5	.4	.3	.3	.2	.2	.2	.2	.3	.3	.4	.5
20	.5	.4	.4	.3	.3	.3	.3	.3	.3	.4	.4	.5
30	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5
40	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6
45	.6	.6	.5	.5	.5	.5	.5	.5	.5	.5	.6	.6
50	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6
55	.6	.6	.7	.7	.7	.7	.7	.7	.7	.7	.6	.6
60	.7	.7	.7	.8	.8	.8	.8	.8	.8	.7	.7	.7
62	0.7	0.7	0.8	0.8	0.9	0.9	0.9	0.9	0.8	0.8	0.7	0.7
64	.7	.8	.8	.9	0.9	0.9	0.9	0.9	.9	.8	.8	.7
66	.7	.8	.9	0.9	1.0	1.0	1.0	1.0	0.9	.9	.8	.7
68	0.8	0.8	0.9	1.0	1.1	1.1	1.1	1.1	1.0	0.9	0.9	0.8
Month	<i>a</i> ₂	<i>a</i> ₂	<i>a</i> ₂	<i>a</i> ₂	<i>a</i> ₂	<i>a</i> ₂	<i>a</i> ₂	<i>a</i> ₂	<i>a</i> ₂	<i>a</i> ₂	<i>a</i> ₂	<i>a</i> ₂
Jan.	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7
Feb.	.4	.4	.4	.4	.4	.4	.5	.5	.5	.5	.6	.6
Mar.	.4	.4	.4	.4	.3	.3	.3	.3	.4	.4	.4	.4
Apr.	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
May	.7	.6	.6	.5	.4	.4	.3	.3	.2	.2	.2	.2
June	.8	.8	.7	.6	.6	.5	.4	.4	.3	.3	.2	.2
July	0.9	0.9	0.8	0.8	0.7	0.6	0.6	0.5	0.5	0.4	0.3	0.3
Aug.	1.0	1.0	0.9	0.9	.9	.8	.7	.7	.6	.6	.5	.4
Sept.	0.9	1.0	1.0	1.0	0.9	0.9	0.9	0.8	.8	.7	.7	.6
Oct.	0.8	0.9	0.9	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.8
Nov.	.7	.8	.8	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Dec.	0.5	0.6	0.7	0.8	0.8	0.9	1.0	1.0	1.0	1.0	1.1	1.0
Lat.	AZIMUTH											
0	0.5	0.6	0.7	0.8	0.8	0.9	0.9	0.8	0.8	0.7	0.6	0.5
20	0.5	0.7	0.8	0.8	0.9	0.9	0.9	0.9	0.8	0.8	0.7	0.5
40	0.6	0.8	0.9	1.0	1.1	1.1	1.1	1.1	1.0	0.9	0.8	0.7
50	0.8	0.9	1.1	1.2	1.3	1.4	1.4	1.3	1.2	1.1	1.0	0.8
55	0.9	1.0	1.2	1.4	1.5	1.5	1.5	1.5	1.4	1.3	1.1	0.9
60	1.0	1.2	1.4	1.6	1.7	1.7	1.7	1.7	1.6	1.5	1.3	1.0
65	1.1	1.4	1.6	1.8	2.0	2.0	2.1	2.0	1.9	1.7	1.5	1.2

Latitude = corrected sextant altitude $-1^{\circ} + a_0 + a_1 + a_2$

The table is entered with L.H.A. Aries to determine the column to be used; each column refers to a range of 10° . a_0 is taken, with mental interpolation, from the upper table with the units of L.H.A. Aries in degrees as argument; a_1 , a_2 are taken, without interpolation, from the second and third tables with arguments latitude and month respectively. a_0 , a_1 , a_2 are always positive. The final table gives the azimuth of *Polaris*.

CONVERSION OF ARC TO TIME

0°-59°			60°-119°			120°-179°			180°-239°			240°-299°			300°-359°				0' 00	0' 25	0' 50	0' 75
a	h	m	o	h	m	o	h	m	o	h	m	o	h	m	o	h	m		m	s	m	s
0	0	00	60	4	00	120	8	00	180	12	00	240	16	00	300	20	00	0	0	00	0	03
1	0	04	61	4	04	121	8	04	181	12	04	241	16	04	301	20	04	1	0	04	0	07
2	0	08	62	4	08	122	8	08	182	12	08	242	16	08	302	20	08	2	0	08	0	11
3	0	12	63	4	12	123	8	12	183	12	12	243	16	12	303	20	12	3	0	12	0	15
4	0	16	64	4	16	124	8	16	184	12	16	244	16	16	304	20	16	4	0	16	0	19
5	0	20	65	4	20	125	8	20	185	12	20	245	16	20	305	20	20	5	0	20	0	23
6	0	24	66	4	24	126	8	24	186	12	24	246	16	24	306	20	24	6	0	24	0	27
7	0	28	67	4	28	127	8	28	187	12	28	247	16	28	307	20	28	7	0	28	0	31
8	0	32	68	4	32	128	8	32	188	12	32	248	16	32	308	20	32	8	0	32	0	35
9	0	36	69	4	36	129	8	36	189	12	36	249	16	36	309	20	36	9	0	36	0	39
10	0	40	70	4	40	130	8	40	190	12	40	250	16	40	310	20	40	10	0	40	0	43
11	0	44	71	4	44	131	8	44	191	12	44	251	16	44	311	20	44	11	0	44	0	47
12	0	48	72	4	48	132	8	48	192	12	48	252	16	48	312	20	48	12	0	48	0	51
13	0	52	73	4	52	133	8	52	193	12	52	253	16	52	313	20	52	13	0	52	0	55
14	0	56	74	4	56	134	8	56	194	12	56	254	16	56	314	20	56	14	0	56	0	59
15	1	00	75	5	00	135	9	00	195	13	00	255	17	00	315	21	00	15	1	00	1	03
16	1	04	76	5	04	136	9	04	196	13	04	256	17	04	316	21	04	16	1	04	1	07
17	1	08	77	5	08	137	9	08	197	13	08	257	17	08	317	21	08	17	1	08	1	11
18	1	12	78	5	12	138	9	12	198	13	12	258	17	12	318	21	12	18	1	12	1	15
19	1	16	79	5	16	139	9	16	199	13	16	259	17	16	319	21	16	19	1	16	1	19
20	1	20	80	5	20	140	9	20	200	13	20	260	17	20	320	21	20	20	1	20	1	23
21	1	24	81	5	24	141	9	24	201	13	24	261	17	24	321	21	24	21	1	24	1	27
22	1	28	82	5	28	142	9	28	202	13	28	262	17	28	322	21	28	22	1	28	1	31
23	1	32	83	5	32	143	9	32	203	13	32	263	17	32	323	21	32	23	1	32	1	35
24	1	36	84	5	36	144	9	36	204	13	36	264	17	36	324	21	36	24	1	36	1	39
25	1	40	85	5	40	145	9	40	205	13	40	265	17	40	325	21	40	25	1	40	1	43
26	1	44	86	5	44	146	9	44	206	13	44	266	17	44	326	21	44	26	1	44	1	47
27	1	48	87	5	48	147	9	48	207	13	48	267	17	48	327	21	48	27	1	48	1	51
28	1	52	88	5	52	148	9	52	208	13	52	268	17	52	328	21	52	28	1	52	1	55
29	1	56	89	5	56	149	9	56	209	13	56	269	17	56	329	21	56	29	1	56	1	59
30	2	00	90	6	00	150	10	00	210	14	00	270	18	00	330	22	00	30	2	00	2	03
31	2	04	91	6	04	151	10	04	211	14	04	271	18	04	331	22	04	31	2	04	2	07
32	2	08	92	6	08	152	10	08	212	14	08	272	18	08	332	22	08	32	2	08	2	11
33	2	12	93	6	12	153	10	12	213	14	12	273	18	12	333	22	12	33	2	12	2	15
34	2	16	94	6	16	154	10	16	214	14	16	274	18	16	334	22	16	34	2	16	2	19
35	2	20	95	6	20	155	10	20	215	14	20	275	18	20	335	22	20	35	2	20	2	23
36	2	24	96	6	24	156	10	24	216	14	24	276	18	24	336	22	24	36	2	24	2	27
37	2	28	97	6	28	157	10	28	217	14	28	277	18	28	337	22	28	37	2	28	2	31
38	2	32	98	6	32	158	10	32	218	14	32	278	18	32	338	22	32	38	2	32	2	35
39	2	36	99	6	36	159	10	36	219	14	36	279	18	36	339	22	36	39	2	36	2	39
40	2	40	100	6	40	160	10	40	220	14	40	280	18	40	340	22	40	40	2	40	2	43
41	2	44	101	6	44	161	10	44	221	14	44	281	18	44	341	22	44	41	2	44	2	47
42	2	48	102	6	48	162	10	48	222	14	48	282	18	48	342	22	48	42	2	48	2	51
43	2	52	103	6	52	163	10	52	223	14	52	283	18	52	343	22	52	43	2	52	2	55
44	2	56	104	6	56	164	10	56	224	14	56	284	18	56	344	22	56	44	2	56	2	59
45	3	00	105	7	00	165	11	00	225	15	00	285	19	00	345	23	00	45	3	00	3	03
46	3	04	106	7	04	166	11	04	226	15	04	286	19	04	346	23	04	46	3	04	3	07
47	3	08	107	7	08	167	11	08	227	15	08	287	19	08	347	23	08	47	3	08	3	11
48	3	12	108	7	12	168	11	12	228	15	12	288	19	12	348	23	12	48	3	12	3	15
49	3	16	109	7	16	169	11	16	229	15	16	289	19	16	349	23	16	49	3	16	3	19
50	3	20	110	7	20	170	11	20	230	15	20	290	19	20	350	23	20	50	3	20	3	23
51	3	24	111	7	24	171	11	24	231	15	24	291	19	24	351	23	24	51	3	24	3	27
52	3	28	112	7	28	172	11	28	232	15	28	292	19	28	352	23	28	52	3	28	3	31
53	3	32	113	7	32	173	11	32	233	15	32	293	19	32	353	23	32	53	3	32	3	35
54	3	36	114	7	36	174	11	36	234	15	36	294	19	36	354	23	36	54	3	36	3	39
55	3	40	115	7	40	175	11	40	235	15	40	295	19	40	355	23	40	55	3	40	3	43
56	3	44	116	7	44	176	11	44	236	15	44	296	19	44	356	23	44	56	3	44	3	47
57	3	48	117	7	48	177	11	48	237	15	48	297	19	48	357	23	48	57	3	48	3	51
58	3	52	118	7	52	178	11	52	238	15	52	298	19	52	358	23	52	58	3	52	3	55
59	3	56	119	7	56	179	11	56	239	15	56	299	19	56	359	23	56	59	3	56	3	59

The above table is for converting expressions in arc to their equivalent in time ; its main use in this Almanac is for the conversion of longitude for application to L.M.T. (*added if west, subtracted if east*) to give G.M.T. or vice versa, particularly in the case of sunrise, sunset, etc.

2 ^m	SUN PLANETS	ARIES	MOON	v or d	Corr ⁿ	v or d	Corr ⁿ	v or d	Corr ⁿ
s	° /	° /	° /	/	/	/	/	/	/
00	0 30-0	0 30-1	0 28-6	0-0	0-0	6-0	0-3	12-0	0-5
01	0 30-3	0 30-3	0 28-9	0-1	0-0	6-1	0-3	12-1	0-5
02	0 30-5	0 30-6	0 29-1	0-2	0-0	6-2	0-3	12-2	0-5
03	0 30-8	0 30-8	0 29-3	0-3	0-0	6-3	0-3	12-3	0-5
04	0 31-0	0 31-1	0 29-6	0-4	0-0	6-4	0-3	12-4	0-5
05	0 31-3	0 31-3	0 29-8	0-5	0-0	6-5	0-3	12-5	0-5
06	0 31-5	0 31-6	0 30-1	0-6	0-0	6-6	0-3	12-6	0-5
07	0 31-8	0 31-8	0 30-3	0-7	0-0	6-7	0-3	12-7	0-5
08	0 32-0	0 32-1	0 30-5	0-8	0-0	6-8	0-3	12-8	0-5
09	0 32-3	0 32-3	0 30-8	0-9	0-0	6-9	0-3	12-9	0-5
10	0 32-5	0 32-6	0 31-0	1-0	0-0	7-0	0-3	13-0	0-5
11	0 32-8	0 32-8	0 31-3	1-1	0-0	7-1	0-3	13-1	0-5
12	0 33-0	0 33-1	0 31-5	1-2	0-1	7-2	0-3	13-2	0-6
13	0 33-3	0 33-3	0 31-7	1-3	0-1	7-3	0-3	13-3	0-6
14	0 33-5	0 33-6	0 32-0	1-4	0-1	7-4	0-3	13-4	0-6
15	0 33-8	0 33-8	0 32-2	1-5	0-1	7-5	0-3	13-5	0-6
16	0 34-0	0 34-1	0 32-5	1-6	0-1	7-6	0-3	13-6	0-6
17	0 34-3	0 34-3	0 32-7	1-7	0-1	7-7	0-3	13-7	0-6
18	0 34-5	0 34-6	0 32-9	1-8	0-1	7-8	0-3	13-8	0-6
19	0 34-8	0 34-8	0 33-2	1-9	0-1	7-9	0-3	13-9	0-6
20	0 35-0	0 35-1	0 33-4	2-0	0-1	8-0	0-3	14-0	0-6
21	0 35-3	0 35-3	0 33-6	2-1	0-1	8-1	0-3	14-1	0-6
22	0 35-5	0 35-6	0 33-9	2-2	0-1	8-2	0-3	14-2	0-6
23	0 35-8	0 35-8	0 34-1	2-3	0-1	8-3	0-3	14-3	0-6
24	0 36-0	0 36-1	0 34-4	2-4	0-1	8-4	0-4	14-4	0-6
25	0 36-3	0 36-3	0 34-6	2-5	0-1	8-5	0-4	14-5	0-6
26	0 36-5	0 36-6	0 34-8	2-6	0-1	8-6	0-4	14-6	0-6
27	0 36-8	0 36-9	0 35-1	2-7	0-1	8-7	0-4	14-7	0-6
28	0 37-0	0 37-1	0 35-3	2-8	0-1	8-8	0-4	14-8	0-6
29	0 37-3	0 37-4	0 35-6	2-9	0-1	8-9	0-4	14-9	0-6
30	0 37-5	0 37-6	0 35-8	3-0	0-1	9-0	0-4	15-0	0-6
31	0 37-8	0 37-9	0 36-0	3-1	0-1	9-1	0-4	15-1	0-6
32	0 38-0	0 38-1	0 36-3	3-2	0-1	9-2	0-4	15-2	0-6
33	0 38-3	0 38-4	0 36-5	3-3	0-1	9-3	0-4	15-3	0-6
34	0 38-5	0 38-6	0 36-7	3-4	0-1	9-4	0-4	15-4	0-6
35	0 38-8	0 38-9	0 37-0	3-5	0-1	9-5	0-4	15-5	0-6
36	0 39-0	0 39-1	0 37-2	3-6	0-2	9-6	0-4	15-6	0-7
37	0 39-3	0 39-4	0 37-5	3-7	0-2	9-7	0-4	15-7	0-7
38	0 39-5	0 39-6	0 37-7	3-8	0-2	9-8	0-4	15-8	0-7
39	0 39-8	0 39-9	0 37-9	3-9	0-2	9-9	0-4	15-9	0-7
40	0 40-0	0 40-1	0 38-2	4-0	0-2	10-0	0-4	16-0	0-7
41	0 40-3	0 40-4	0 38-4	4-1	0-2	10-1	0-4	16-1	0-7
42	0 40-5	0 40-6	0 38-7	4-2	0-2	10-2	0-4	16-2	0-7
43	0 40-8	0 40-9	0 38-9	4-3	0-2	10-3	0-4	16-3	0-7
44	0 41-0	0 41-1	0 39-1	4-4	0-2	10-4	0-4	16-4	0-7
45	0 41-3	0 41-4	0 39-4	4-5	0-2	10-5	0-4	16-5	0-7
46	0 41-5	0 41-6	0 39-6	4-6	0-2	10-6	0-4	16-6	0-7
47	0 41-8	0 41-9	0 39-8	4-7	0-2	10-7	0-4	16-7	0-7
48	0 42-0	0 42-1	0 40-1	4-8	0-2	10-8	0-5	16-8	0-7
49	0 42-3	0 42-4	0 40-3	4-9	0-2	10-9	0-5	16-9	0-7
50	0 42-5	0 42-6	0 40-6	5-0	0-2	11-0	0-5	17-0	0-7
51	0 42-8	0 42-9	0 40-8	5-1	0-2	11-1	0-5	17-1	0-7
52	0 43-0	0 43-1	0 41-0	5-2	0-2	11-2	0-5	17-2	0-7
53	0 43-3	0 43-4	0 41-3	5-3	0-2	11-3	0-5	17-3	0-7
54	0 43-5	0 43-6	0 41-5	5-4	0-2	11-4	0-5	17-4	0-7
55	0 43-8	0 43-9	0 41-8	5-5	0-2	11-5	0-5	17-5	0-7
56	0 44-0	0 44-1	0 42-0	5-6	0-2	11-6	0-5	17-6	0-7
57	0 44-3	0 44-4	0 42-2	5-7	0-2	11-7	0-5	17-7	0-7
58	0 44-5	0 44-6	0 42-5	5-8	0-2	11-8	0-5	17-8	0-7
59	0 44-8	0 44-9	0 42-7	5-9	0-2	11-9	0-5	17-9	0-7
60	0 45-0	0 45-1	0 43-0	6-0	0-3	12-0	0-5	18-0	0-8

3 ^m	SUN PLANETS	ARIES	MOON	v or d	Corr ⁿ	v or d	Corr ⁿ	v or d	Corr ⁿ
s	° /	° /	° /	/	/	/	/	/	/
00	0 45-0	0 45-1	0 43-0	0-0	0-0	6-0	0-4	12-0	0-7
01	0 45-3	0 45-4	0 43-2	0-1	0-0	6-1	0-4	12-1	0-7
02	0 45-5	0 45-6	0 43-4	0-2	0-0	6-2	0-4	12-2	0-7
03	0 45-8	0 45-9	0 43-7	0-3	0-0	6-3	0-4	12-3	0-7
04	0 46-0	0 46-1	0 43-9	0-4	0-0	6-4	0-4	12-4	0-7
05	0 46-3	0 46-4	0 44-1	0-5	0-0	6-5	0-4	12-5	0-7
06	0 46-5	0 46-6	0 44-4	0-6	0-0	6-6	0-4	12-6	0-7
07	0 46-8	0 46-9	0 44-6	0-7	0-0	6-7	0-4	12-7	0-7
08	0 47-0	0 47-1	0 44-9	0-8	0-0	6-8	0-4	12-8	0-7
09	0 47-3	0 47-4	0 45-1	0-9	0-1	6-9	0-4	12-9	0-8
10	0 47-5	0 47-6	0 45-3	1-0	0-1	7-0	0-4	13-0	0-8
11	0 47-8	0 47-9	0 45-6	1-1	0-1	7-1	0-4	13-1	0-8
12	0 48-0	0 48-1	0 45-8	1-2	0-1	7-2	0-4	13-2	0-8
13	0 48-3	0 48-4	0 46-1	1-3	0-1	7-3	0-4	13-3	0-8
14	0 48-5	0 48-6	0 46-3	1-4	0-1	7-4	0-4	13-4	0-8
15	0 48-8	0 48-9	0 46-5	1-5	0-1	7-5	0-4	13-5	0-8
16	0 49-0	0 49-1	0 46-8	1-6	0-1	7-6	0-4	13-6	0-8
17	0 49-3	0 49-4	0 47-0	1-7	0-1	7-7	0-4	13-7	0-8
18	0 49-5	0 49-6	0 47-2	1-8	0-1	7-8	0-5	13-8	0-8
19	0 49-8	0 49-9	0 47-5	1-9	0-1	7-9	0-5	13-9	0-8
20	0 50-0	0 50-1	0 47-7	2-0	0-1	8-0	0-5	14-0	0-8
21	0 50-3	0 50-4	0 48-0	2-1	0-1	8-1	0-5	14-1	0-8
22	0 50-5	0 50-6	0 48-2	2-2	0-1	8-2	0-5	14-2	0-8
23	0 50-8	0 50-9	0 48-4	2-3	0-1	8-3	0-5	14-3	0-8
24	0 51-0	0 51-1	0 48-7	2-4	0-1	8-4	0-5	14-4	0-8
25	0 51-3	0 51-4	0 48-9	2-5	0-1	8-5	0-5	14-5	0-8
26	0 51-5	0 51-6	0 49-2	2-6	0-2	8-6	0-5	14-6	0-9
27	0 51-8	0 51-9	0 49-4	2-7	0-2	8-7	0-5	14-7	0-9
28	0 52-0	0 52-1	0 49-6	2-8	0-2	8-8	0-5	14-8	0-9
29	0 52-3	0 52-4	0 49-9	2-9	0-2	8-9	0-5	14-9	0-9
30	0 52-5	0 52-6	0 50-1	3-0	0-2	9-0	0-5	15-0	0-9
31	0 52-8	0 52-9	0 50-3	3-1	0-2	9-1	0-5	15-1	0-9
32	0 53-0	0 53-1	0 50-6	3-2	0-2	9-2	0-5	15-2	0-9
33	0 53-3	0 53-4	0 50-8	3-3	0-2	9-3	0-5	15-3	0-9
34	0 53-5	0 53-6	0 51-1	3-4	0-2	9-4	0-5	15-4	0-9
35	0 53-8	0 53-9	0 51-3	3-5	0-2	9-5	0-6	15-5	0-9
36	0 54-0	0 54-1	0 51-5	3-6	0-2	9-6	0-6	15-6	0-9
37	0 54-3	0 54-4	0 51-8	3-7	0-2	9-7	0-6	15-7	0-9
38	0 54-5	0 54-6	0 52-0	3-8	0-2	9-8	0-6	15-8	0-9
39	0 54-8	0 54-9	0 52-3	3-9	0-2	9-9	0-6	15-9	0-9
40	0 55-0	0 55-2	0 52-5	4-0	0-2	10-0	0-6	16-0	0-9
41	0 55-3	0 55-4	0 52-7	4-1	0-2	10-1	0-6	16-1	0-9
42	0 55-5	0 55-7	0 53-0	4-2	0-2	10-2	0-6	16-2	0-9
43	0 55-8	0 55-9	0 53-2	4-3	0-3	10-3	0-6	16-3	1-0
44	0 56-0	0 56-2	0 53-4	4-4	0-3	10-4	0-6	16-4	1-0
45	0 56-3	0 56-4	0 53-7	4-5	0-3	10-5	0-6	16-5	1-0
46	0 56-5	0 56-7	0 53-9	4-6	0-3	10-6	0-6	16-6	1-0
47	0 56-8	0 56-9	0 54-2	4-7	0-3	10-7	0-6	16-7	1-0
48	0 57-0	0 57-2	0 54-4	4-8	0-3	10-8	0-6	16-8	1-0
49	0 57-3	0 57-4	0 54-6	4-9	0-3	10-9	0-6	16-9	1-0
50	0 57-5	0 57-7	0 54-9	5-0	0-3	11-0	0-6	17-0	1-0
51	0 57-8	0 57-9	0 55-1	5-1	0-3	11-1	0-6	17-1	1-0
52	0 58-0	0 58-2	0 55-4	5-2	0-3	11-2	0-7	17-2	1-0
53	0 58-3	0 58-4	0 55-6	5-3	0-3	11-3	0-7	17-3	1-0
54	0 58-5	0 58-7	0 55-8	5-4	0-3	11-4	0-7	17-4	1-0
55	0 58-8	0 58-9	0 56-1	5-5	0-3	11-5	0-7	17-5	1-0
56	0 59-0	0 59-2	0 56-3	5-6	0-3	11-6	0-7	17-6	1-0
57	0 59-3	0 59-4	0 56-6	5-7	0-3	11-7	0-7	17-7	1-0
58	0 59-5	0 59-7	0 56-8	5-8	0-3	11-8	0-7	17-8	1-0
59	0 59-8	0 59-9	0 57-0	5-9	0-3	11-9	0-7	17-9	1-0
60	1 00-0	1 00-2	0 57-3	6-0	0-4	12-0	0-7	18-0	1-1

^m 4	SUN PLANETS	ARIES	MOON	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ
s	o	/	o	/	/	/
00	1 00.0	1 00.2	0 57.3	0.0	0.0	12.0
01	1 00.3	1 00.4	0 57.5	0.1	0.0	12.1
02	1 00.5	1 00.7	0 57.7	0.2	0.0	12.2
03	1 00.8	1 00.9	0 58.0	0.3	0.0	12.3
04	1 01.0	1 01.2	0 58.2	0.4	0.0	12.4
05	1 01.3	1 01.4	0 58.5	0.5	0.0	12.5
06	1 01.5	1 01.7	0 58.7	0.6	0.0	12.6
07	1 01.8	1 01.9	0 58.9	0.7	0.1	12.7
08	1 02.0	1 02.2	0 59.2	0.8	0.1	12.8
09	1 02.3	1 02.4	0 59.4	0.9	0.1	12.9
10	1 02.5	1 02.7	0 59.7	1.0	0.1	13.0
11	1 02.8	1 02.9	0 59.9	1.1	0.1	13.1
12	1 03.0	1 03.2	1 00.1	1.2	0.1	13.2
13	1 03.3	1 03.4	1 00.4	1.3	0.1	13.3
14	1 03.5	1 03.7	1 00.6	1.4	0.1	13.4
15	1 03.8	1 03.9	1 00.8	1.5	0.1	13.5
16	1 04.0	1 04.2	1 01.1	1.6	0.1	13.6
17	1 04.3	1 04.4	1 01.3	1.7	0.1	13.7
18	1 04.5	1 04.7	1 01.6	1.8	0.1	13.8
19	1 04.8	1 04.9	1 01.8	1.9	0.1	13.9
20	1 05.0	1 05.2	1 02.0	2.0	0.2	14.0
21	1 05.3	1 05.4	1 02.3	2.1	0.2	14.1
22	1 05.5	1 05.7	1 02.5	2.2	0.2	14.2
23	1 05.8	1 05.9	1 02.8	2.3	0.2	14.3
24	1 06.0	1 06.2	1 03.0	2.4	0.2	14.4
25	1 06.3	1 06.4	1 03.2	2.5	0.2	14.5
26	1 06.5	1 06.7	1 03.5	2.6	0.2	14.6
27	1 06.8	1 06.9	1 03.7	2.7	0.2	14.7
28	1 07.0	1 07.2	1 03.9	2.8	0.2	14.8
29	1 07.3	1 07.4	1 04.2	2.9	0.2	14.9
30	1 07.5	1 07.7	1 04.4	3.0	0.2	15.0
31	1 07.8	1 07.9	1 04.7	3.1	0.2	15.1
32	1 08.0	1 08.2	1 04.9	3.2	0.2	15.2
33	1 08.3	1 08.4	1 05.1	3.3	0.2	15.3
34	1 08.5	1 08.7	1 05.4	3.4	0.3	15.4
35	1 08.8	1 08.9	1 05.6	3.5	0.3	15.5
36	1 09.0	1 09.2	1 05.9	3.6	0.3	15.6
37	1 09.3	1 09.4	1 06.1	3.7	0.3	15.7
38	1 09.5	1 09.7	1 06.3	3.8	0.3	15.8
39	1 09.8	1 09.9	1 06.6	3.9	0.3	15.9
40	1 10.0	1 10.2	1 06.8	4.0	0.3	16.0
41	1 10.3	1 10.4	1 07.0	4.1	0.3	16.1
42	1 10.5	1 10.7	1 07.3	4.2	0.3	16.2
43	1 10.8	1 10.9	1 07.5	4.3	0.3	16.3
44	1 11.0	1 11.2	1 07.8	4.4	0.3	16.4
45	1 11.3	1 11.4	1 08.0	4.5	0.3	16.5
46	1 11.5	1 11.7	1 08.2	4.6	0.3	16.6
47	1 11.8	1 11.9	1 08.5	4.7	0.4	16.7
48	1 12.0	1 12.2	1 08.7	4.8	0.4	16.8
49	1 12.3	1 12.4	1 09.0	4.9	0.4	16.9
50	1 12.5	1 12.7	1 09.2	5.0	0.4	17.0
51	1 12.8	1 12.9	1 09.4	5.1	0.4	17.1
52	1 13.0	1 13.2	1 09.7	5.2	0.4	17.2
53	1 13.3	1 13.5	1 09.9	5.3	0.4	17.3
54	1 13.5	1 13.7	1 10.2	5.4	0.4	17.4
55	1 13.8	1 14.0	1 10.4	5.5	0.4	17.5
56	1 14.0	1 14.2	1 10.6	5.6	0.4	17.6
57	1 14.3	1 14.5	1 10.9	5.7	0.4	17.7
58	1 14.5	1 14.7	1 11.1	5.8	0.4	17.8
59	1 14.8	1 15.0	1 11.3	5.9	0.4	17.9
60	1 15.0	1 15.2	1 11.6	6.0	0.5	18.0

^m 5	SUN PLANETS	ARIES	MOON	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ
s	o	/	o	/	/	/
00	1 15.0	1 15.2	1 11.6	0.0	0.0	12.0
01	1 15.3	1 15.5	1 11.8	0.1	0.0	12.1
02	1 15.5	1 15.7	1 12.1	0.2	0.0	12.2
03	1 15.8	1 16.0	1 12.3	0.3	0.0	12.3
04	1 16.0	1 16.2	1 12.5	0.4	0.0	12.4
05	1 16.3	1 16.5	1 12.8	0.5	0.0	12.5
06	1 16.5	1 16.7	1 13.0	0.6	0.1	12.6
07	1 16.8	1 17.0	1 13.3	0.7	0.1	12.7
08	1 17.0	1 17.2	1 13.5	0.8	0.1	12.8
09	1 17.3	1 17.5	1 13.7	0.9	0.1	12.9
10	1 17.5	1 17.7	1 14.0	1.0	0.1	13.0
11	1 17.8	1 18.0	1 14.2	1.1	0.1	13.1
12	1 18.0	1 18.2	1 14.4	1.2	0.1	13.2
13	1 18.3	1 18.5	1 14.7	1.3	0.1	13.3
14	1 18.5	1 18.7	1 14.9	1.4	0.1	13.4
15	1 18.8	1 19.0	1 15.2	1.5	0.1	13.5
16	1 19.0	1 19.2	1 15.4	1.6	0.1	13.6
17	1 19.3	1 19.5	1 15.6	1.7	0.2	13.7
18	1 19.5	1 19.7	1 15.9	1.8	0.2	13.8
19	1 19.8	1 20.0	1 16.1	1.9	0.2	13.9
20	1 20.0	1 20.2	1 16.4	2.0	0.2	14.0
21	1 20.3	1 20.5	1 16.6	2.1	0.2	14.1
22	1 20.5	1 20.7	1 16.8	2.2	0.2	14.2
23	1 20.8	1 21.0	1 17.1	2.3	0.2	14.3
24	1 21.0	1 21.2	1 17.3	2.4	0.2	14.4
25	1 21.3	1 21.5	1 17.5	2.5	0.2	14.5
26	1 21.5	1 21.7	1 17.8	2.6	0.2	14.6
27	1 21.8	1 22.0	1 18.0	2.7	0.2	14.7
28	1 22.0	1 22.2	1 18.3	2.8	0.3	14.8
29	1 22.3	1 22.5	1 18.5	2.9	0.3	14.9
30	1 22.5	1 22.7	1 18.7	3.0	0.3	15.0
31	1 22.8	1 23.0	1 19.0	3.1	0.3	15.1
32	1 23.0	1 23.2	1 19.2	3.2	0.3	15.2
33	1 23.3	1 23.5	1 19.5	3.3	0.3	15.3
34	1 23.5	1 23.7	1 19.7	3.4	0.3	15.4
35	1 23.8	1 24.0	1 19.9	3.5	0.3	15.5
36	1 24.0	1 24.2	1 20.2	3.6	0.3	15.6
37	1 24.3	1 24.5	1 20.4	3.7	0.3	15.7
38	1 24.5	1 24.7	1 20.7	3.8	0.3	15.8
39	1 24.8	1 25.0	1 20.9	3.9	0.4	15.9
40	1 25.0	1 25.2	1 21.1	4.0	0.4	16.0
41	1 25.3	1 25.5	1 21.4	4.1	0.4	16.1
42	1 25.5	1 25.7	1 21.6	4.2	0.4	16.2
43	1 25.8	1 26.0	1 21.8	4.3	0.4	16.3
44	1 26.0	1 26.2	1 22.1	4.4	0.4	16.4
45	1 26.3	1 26.5	1 22.3	4.5	0.4	16.5
46	1 26.5	1 26.7	1 22.6	4.6	0.4	16.6
47	1 26.8	1 27.0	1 22.8	4.7	0.4	16.7
48	1 27.0	1 27.2	1 23.0	4.8	0.4	16.8
49	1 27.3	1 27.5	1 23.3	4.9	0.4	16.9
50	1 27.5	1 27.7	1 23.5	5.0	0.5	17.0
51	1 27.8	1 28.0	1 23.8	5.1	0.5	17.1
52	1 28.0	1 28.2	1 24.0	5.2	0.5	17.2
53	1 28.3	1 28.5	1 24.2	5.3	0.5	17.3
54	1 28.5	1 28.7	1 24.5	5.4	0.5	17.4
55	1 28.8	1 29.0	1 24.7	5.5	0.5	17.5
56	1 29.0	1 29.2	1 24.9	5.6	0.5	17.6
57	1 29.3	1 29.5	1 25.2	5.7	0.5	17.7
58	1 29.5	1 29.7	1 25.4	5.8	0.5	17.8
59	1 29.8	1 30.0	1 25.7	5.9	0.5	17.9
60	1 30.0	1 30.2	1 25.9	6.0	0.6	18.0

^m 6	SUN PLANETS	ARIES	MOON	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ
s	° /	° /	° /	/ /	/ /	/ /
00	1 30.0	1 30.2	1 25.9	0.0 0.0	6.0 0.7	12.0 1.3
01	1 30.3	1 30.5	1 26.1	0.1 0.0	6.1 0.7	12.1 1.3
02	1 30.5	1 30.7	1 26.4	0.2 0.0	6.2 0.7	12.2 1.3
03	1 30.8	1 31.0	1 26.6	0.3 0.0	6.3 0.7	12.3 1.3
04	1 31.0	1 31.2	1 26.9	0.4 0.0	6.4 0.7	12.4 1.3
05	1 31.3	1 31.5	1 27.1	0.5 0.1	6.5 0.7	12.5 1.4
06	1 31.5	1 31.8	1 27.3	0.6 0.1	6.6 0.7	12.6 1.4
07	1 31.8	1 32.0	1 27.6	0.7 0.1	6.7 0.7	12.7 1.4
08	1 32.0	1 32.3	1 27.8	0.8 0.1	6.8 0.7	12.8 1.4
09	1 32.3	1 32.5	1 28.0	0.9 0.1	6.9 0.7	12.9 1.4
10	1 32.5	1 32.8	1 28.3	1.0 0.1	7.0 0.8	13.0 1.4
11	1 32.8	1 33.0	1 28.5	1.1 0.1	7.1 0.8	13.1 1.4
12	1 33.0	1 33.3	1 28.8	1.2 0.1	7.2 0.8	13.2 1.4
13	1 33.3	1 33.5	1 29.0	1.3 0.1	7.3 0.8	13.3 1.4
14	1 33.5	1 33.8	1 29.2	1.4 0.2	7.4 0.8	13.4 1.5
15	1 33.8	1 34.0	1 29.5	1.5 0.2	7.5 0.8	13.5 1.5
16	1 34.0	1 34.3	1 29.7	1.6 0.2	7.6 0.8	13.6 1.5
17	1 34.3	1 34.5	1 30.0	1.7 0.2	7.7 0.8	13.7 1.5
18	1 34.5	1 34.8	1 30.2	1.8 0.2	7.8 0.8	13.8 1.5
19	1 34.8	1 35.0	1 30.4	1.9 0.2	7.9 0.9	13.9 1.5
20	1 35.0	1 35.3	1 30.7	2.0 0.2	8.0 0.9	14.0 1.5
21	1 35.3	1 35.5	1 30.9	2.1 0.2	8.1 0.9	14.1 1.5
22	1 35.5	1 35.8	1 31.1	2.2 0.2	8.2 0.9	14.2 1.5
23	1 35.8	1 36.0	1 31.4	2.3 0.2	8.3 0.9	14.3 1.5
24	1 36.0	1 36.3	1 31.6	2.4 0.3	8.4 0.9	14.4 1.6
25	1 36.3	1 36.5	1 31.9	2.5 0.3	8.5 0.9	14.5 1.6
26	1 36.5	1 36.8	1 32.1	2.6 0.3	8.6 0.9	14.6 1.6
27	1 36.8	1 37.0	1 32.3	2.7 0.3	8.7 0.9	14.7 1.6
28	1 37.0	1 37.3	1 32.6	2.8 0.3	8.8 1.0	14.8 1.6
29	1 37.3	1 37.5	1 32.8	2.9 0.3	8.9 1.0	14.9 1.6
30	1 37.5	1 37.8	1 33.1	3.0 0.3	9.0 1.0	15.0 1.6
31	1 37.8	1 38.0	1 33.3	3.1 0.3	9.1 1.0	15.1 1.6
32	1 38.0	1 38.3	1 33.5	3.2 0.3	9.2 1.0	15.2 1.6
33	1 38.3	1 38.5	1 33.8	3.3 0.4	9.3 1.0	15.3 1.7
34	1 38.5	1 38.8	1 34.0	3.4 0.4	9.4 1.0	15.4 1.7
35	1 38.8	1 39.0	1 34.3	3.5 0.4	9.5 1.0	15.5 1.7
36	1 39.0	1 39.3	1 34.5	3.6 0.4	9.6 1.0	15.6 1.7
37	1 39.3	1 39.5	1 34.7	3.7 0.4	9.7 1.1	15.7 1.7
38	1 39.5	1 39.8	1 35.0	3.8 0.4	9.8 1.1	15.8 1.7
39	1 39.8	1 40.0	1 35.2	3.9 0.4	9.9 1.1	15.9 1.7
40	1 40.0	1 40.3	1 35.4	4.0 0.4	10.0 1.1	16.0 1.7
41	1 40.3	1 40.5	1 35.7	4.1 0.4	10.1 1.1	16.1 1.7
42	1 40.5	1 40.8	1 35.9	4.2 0.5	10.2 1.1	16.2 1.8
43	1 40.8	1 41.0	1 36.2	4.3 0.5	10.3 1.1	16.3 1.8
44	1 41.0	1 41.3	1 36.4	4.4 0.5	10.4 1.1	16.4 1.8
45	1 41.3	1 41.5	1 36.6	4.5 0.5	10.5 1.1	16.5 1.8
46	1 41.5	1 41.8	1 36.9	4.6 0.5	10.6 1.1	16.6 1.8
47	1 41.8	1 42.0	1 37.1	4.7 0.5	10.7 1.2	16.7 1.8
48	1 42.0	1 42.3	1 37.4	4.8 0.5	10.8 1.2	16.8 1.8
49	1 42.3	1 42.5	1 37.6	4.9 0.5	10.9 1.2	16.9 1.8
50	1 42.5	1 42.8	1 37.8	5.0 0.5	11.0 1.2	17.0 1.8
51	1 42.8	1 43.0	1 38.1	5.1 0.6	11.1 1.2	17.1 1.9
52	1 43.0	1 43.3	1 38.3	5.2 0.6	11.2 1.2	17.2 1.9
53	1 43.3	1 43.5	1 38.5	5.3 0.6	11.3 1.2	17.3 1.9
54	1 43.5	1 43.8	1 38.8	5.4 0.6	11.4 1.2	17.4 1.9
55	1 43.8	1 44.0	1 39.0	5.5 0.6	11.5 1.2	17.5 1.9
56	1 44.0	1 44.3	1 39.3	5.6 0.6	11.6 1.3	17.6 1.9
57	1 44.3	1 44.5	1 39.5	5.7 0.6	11.7 1.3	17.7 1.9
58	1 44.5	1 44.8	1 39.7	5.8 0.6	11.8 1.3	17.8 1.9
59	1 44.8	1 45.0	1 40.0	5.9 0.6	11.9 1.3	17.9 1.9
60	1 45.0	1 45.3	1 40.2	6.0 0.7	12.0 1.3	18.0 2.0

^m 7	SUN PLANETS	ARIES	MOON	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ
s	° /	° /	° /	/ /	/ /	/ /
00	1 45.0	1 45.3	1 40.2	0.0 0.0	6.0 0.8	12.0 1.5
01	1 45.3	1 45.5	1 40.5	0.1 0.0	6.1 0.8	12.1 1.5
02	1 45.5	1 45.8	1 40.7	0.2 0.0	6.2 0.8	12.2 1.5
03	1 45.8	1 46.0	1 40.9	0.3 0.0	6.3 0.8	12.3 1.5
04	1 46.0	1 46.3	1 41.2	0.4 0.1	6.4 0.8	12.4 1.6
05	1 46.3	1 46.5	1 41.4	0.5 0.1	6.5 0.8	12.5 1.6
06	1 46.5	1 46.8	1 41.6	0.6 0.1	6.6 0.8	12.6 1.6
07	1 46.8	1 47.0	1 41.9	0.7 0.1	6.7 0.8	12.7 1.6
08	1 47.0	1 47.3	1 42.1	0.8 0.1	6.8 0.9	12.8 1.6
09	1 47.3	1 47.5	1 42.4	0.9 0.1	6.9 0.9	12.9 1.6
10	1 47.5	1 47.8	1 42.6	1.0 0.1	7.0 0.9	13.0 1.6
11	1 47.8	1 48.0	1 42.8	1.1 0.1	7.1 0.9	13.1 1.6
12	1 48.0	1 48.3	1 43.1	1.2 0.2	7.2 0.9	13.2 1.7
13	1 48.3	1 48.5	1 43.3	1.3 0.2	7.3 0.9	13.3 1.7
14	1 48.5	1 48.8	1 43.6	1.4 0.2	7.4 0.9	13.4 1.7
15	1 48.8	1 49.0	1 43.8	1.5 0.2	7.5 0.9	13.5 1.7
16	1 49.0	1 49.3	1 44.0	1.6 0.2	7.6 1.0	13.6 1.7
17	1 49.3	1 49.5	1 44.3	1.7 0.2	7.7 1.0	13.7 1.7
18	1 49.5	1 49.8	1 44.5	1.8 0.2	7.8 1.0	13.8 1.7
19	1 49.8	1 50.1	1 44.8	1.9 0.2	7.9 1.0	13.9 1.7
20	1 50.0	1 50.3	1 45.0	2.0 0.3	8.0 1.0	14.0 1.8
21	1 50.3	1 50.6	1 45.2	2.1 0.3	8.1 1.0	14.1 1.8
22	1 50.5	1 50.8	1 45.5	2.2 0.3	8.2 1.0	14.2 1.8
23	1 50.8	1 51.1	1 45.7	2.3 0.3	8.3 1.0	14.3 1.8
24	1 51.0	1 51.3	1 45.9	2.4 0.3	8.4 1.1	14.4 1.8
25	1 51.3	1 51.6	1 46.2	2.5 0.3	8.5 1.1	14.5 1.8
26	1 51.5	1 51.8	1 46.4	2.6 0.3	8.6 1.1	14.6 1.8
27	1 51.8	1 52.1	1 46.7	2.7 0.3	8.7 1.1	14.7 1.8
28	1 52.0	1 52.3	1 46.9	2.8 0.4	8.8 1.1	14.8 1.9
29	1 52.3	1 52.6	1 47.1	2.9 0.4	8.9 1.1	14.9 1.9
30	1 52.5	1 52.8	1 47.4	3.0 0.4	9.0 1.1	15.0 1.9
31	1 52.8	1 53.1	1 47.6	3.1 0.4	9.1 1.1	15.1 1.9
32	1 53.0	1 53.3	1 47.9	3.2 0.4	9.2 1.2	15.2 1.9
33	1 53.3	1 53.6	1 48.1	3.3 0.4	9.3 1.2	15.3 1.9
34	1 53.5	1 53.8	1 48.3	3.4 0.4	9.4 1.2	15.4 1.9
35	1 53.8	1 54.1	1 48.6	3.5 0.4	9.5 1.2	15.5 1.9
36	1 54.0	1 54.3	1 48.8	3.6 0.5	9.6 1.2	15.6 2.0
37	1 54.3	1 54.6	1 49.0	3.7 0.5	9.7 1.2	15.7 2.0
38	1 54.5	1 54.8	1 49.3	3.8 0.5	9.8 1.2	15.8 2.0
39	1 54.8	1 55.1	1 49.5	3.9 0.5	9.9 1.2	15.9 2.0
40	1 55.0	1 55.3	1 49.8	4.0 0.5	10.0 1.3	16.0 2.0
41	1 55.3	1 55.6	1 50.0	4.1 0.5	10.1 1.3	16.1 2.0
42	1 55.5	1 55.8	1 50.2	4.2 0.5	10.2 1.3	16.2 2.0
43	1 55.8	1 56.1	1 50.5	4.3 0.5	10.3 1.3	16.3 2.0
44	1 56.0	1 56.3	1 50.7	4.4 0.6	10.4 1.3	16.4 2.1
45	1 56.3	1 56.6	1 51.0	4.5 0.6	10.5 1.3	16.5 2.1
46	1 56.5	1 56.8	1 51.2	4.6 0.6	10.6 1.3	16.6 2.1
47	1 56.8	1 57.1	1 51.4	4.7 0.6	10.7 1.3	16.7 2.1
48	1 57.0	1 57.3	1 51.7	4.8 0.6	10.8 1.4	16.8 2.1
49	1 57.3	1 57.6	1 51.9	4.9 0.6	10.9 1.4	16.9 2.1
50	1 57.5	1 57.8	1 52.1	5.0 0.6	11.0 1.4	17.0 2.1
51	1 57.8	1 58.1	1 52.4	5.1 0.6	11.1 1.4	17.1 2.1
52	1 58.0	1 58.3	1 52.6	5.2 0.7	11.2 1.4	17.2 2.2
53	1 58.3	1 58.6	1 52.9	5.3 0.7	11.3 1.4	17.3 2.2
54	1 58.5	1 58.8	1 53.1	5.4 0.7	11.4 1.4	17.4 2.2
55	1 58.8	1 59.1	1 53.3	5.5 0.7	11.5 1.4	17.5 2.2
56	1 59.0	1 59.3	1 53.6	5.6 0.7	11.6 1.5	17.6 2.2
57	1 59.3	1 59.6	1 53.8	5.7 0.7	11.7 1.5	17.7 2.2
58	1 59.5	1 59.8	1 54.1	5.8 0.7	11.8 1.5	17.8 2.2
59	1 59.8	2 00.1	1 54.3	5.9 0.7	11.9 1.5	17.9 2.2
60	2 00.0	2 00.3	1 54.5	6.0 0.8	12.0 1.5	18.0 2.3

8 ^m	SUN PLANETS	ARIES	MOON	ν or Corr ⁿ d	ν or Corr ⁿ d	ν or Corr ⁿ d
00	2 00:0	2 00:3	1 54:5	0:0 0:0	6:0 0:9	12:0 1:7
01	2 00:3	2 00:6	1 54:8	0:1 0:0	6:1 0:9	12:1 1:7
02	2 00:5	2 00:8	1 55:0	0:2 0:0	6:2 0:9	12:2 1:7
03	2 00:8	2 01:1	1 55:2	0:3 0:0	6:3 0:9	12:3 1:7
04	2 01:0	2 01:3	1 55:5	0:4 0:1	6:4 0:9	12:4 1:8
05	2 01:3	2 01:6	1 55:7	0:5 0:1	6:5 0:9	12:5 1:8
06	2 01:5	2 01:8	1 56:0	0:6 0:1	6:6 0:9	12:6 1:8
07	2 01:8	2 02:1	1 56:2	0:7 0:1	6:7 0:9	12:7 1:8
08	2 02:0	2 02:3	1 56:4	0:8 0:1	6:8 1:0	12:8 1:8
09	2 02:3	2 02:6	1 56:7	0:9 0:1	6:9 1:0	12:9 1:8
10	2 02:5	2 02:8	1 56:9	1:0 0:1	7:0 1:0	13:0 1:8
11	2 02:8	2 03:1	1 57:2	1:1 0:2	7:1 1:0	13:1 1:9
12	2 03:0	2 03:3	1 57:4	1:2 0:2	7:2 1:0	13:2 1:9
13	2 03:3	2 03:6	1 57:6	1:3 0:2	7:3 1:0	13:3 1:9
14	2 03:5	2 03:8	1 57:9	1:4 0:2	7:4 1:0	13:4 1:9
15	2 03:8	2 04:1	1 58:1	1:5 0:2	7:5 1:1	13:5 1:9
16	2 04:0	2 04:3	1 58:4	1:6 0:2	7:6 1:1	13:6 1:9
17	2 04:3	2 04:6	1 58:6	1:7 0:2	7:7 1:1	13:7 1:9
18	2 04:5	2 04:8	1 58:8	1:8 0:3	7:8 1:1	13:8 2:0
19	2 04:8	2 05:1	1 59:1	1:9 0:3	7:9 1:1	13:9 2:0
20	2 05:0	2 05:3	1 59:3	2:0 0:3	8:0 1:1	14:0 2:0
21	2 05:3	2 05:6	1 59:5	2:1 0:3	8:1 1:1	14:1 2:0
22	2 05:5	2 05:8	1 59:8	2:2 0:3	8:2 1:2	14:2 2:0
23	2 05:8	2 06:1	2 00:0	2:3 0:3	8:3 1:2	14:3 2:0
24	2 06:0	2 06:3	2 00:3	2:4 0:3	8:4 1:2	14:4 2:0
25	2 06:3	2 06:6	2 00:5	2:5 0:4	8:5 1:2	14:5 2:1
26	2 06:5	2 06:8	2 00:7	2:6 0:4	8:6 1:2	14:6 2:1
27	2 06:8	2 07:1	2 01:0	2:7 0:4	8:7 1:2	14:7 2:1
28	2 07:0	2 07:3	2 01:2	2:8 0:4	8:8 1:2	14:8 2:1
29	2 07:3	2 07:6	2 01:5	2:9 0:4	8:9 1:3	14:9 2:1
30	2 07:5	2 07:8	2 01:7	3:0 0:4	9:0 1:3	15:0 2:1
31	2 07:8	2 08:1	2 01:9	3:1 0:4	9:1 1:3	15:1 2:1
32	2 08:0	2 08:4	2 02:2	3:2 0:5	9:2 1:3	15:2 2:2
33	2 08:3	2 08:6	2 02:4	3:3 0:5	9:3 1:3	15:3 2:2
34	2 08:5	2 08:9	2 02:6	3:4 0:5	9:4 1:3	15:4 2:2
35	2 08:8	2 09:1	2 02:9	3:5 0:5	9:5 1:3	15:5 2:2
36	2 09:0	2 09:4	2 03:1	3:6 0:5	9:6 1:4	15:6 2:2
37	2 09:3	2 09:6	2 03:4	3:7 0:5	9:7 1:4	15:7 2:2
38	2 09:5	2 09:9	2 03:6	3:8 0:5	9:8 1:4	15:8 2:2
39	2 09:8	2 10:1	2 03:8	3:9 0:6	9:9 1:4	15:9 2:3
40	2 10:0	2 10:4	2 04:1	4:0 0:6	10:0 1:4	16:0 2:3
41	2 10:3	2 10:6	2 04:3	4:1 0:6	10:1 1:4	16:1 2:3
42	2 10:5	2 10:9	2 04:6	4:2 0:6	10:2 1:4	16:2 2:3
43	2 10:8	2 11:1	2 04:8	4:3 0:6	10:3 1:5	16:3 2:3
44	2 11:0	2 11:4	2 05:0	4:4 0:6	10:4 1:5	16:4 2:3
45	2 11:3	2 11:6	2 05:3	4:5 0:6	10:5 1:5	16:5 2:3
46	2 11:5	2 11:9	2 05:5	4:6 0:7	10:6 1:5	16:6 2:4
47	2 11:8	2 12:1	2 05:7	4:7 0:7	10:7 1:5	16:7 2:4
48	2 12:0	2 12:4	2 06:0	4:8 0:7	10:8 1:5	16:8 2:4
49	2 12:3	2 12:6	2 06:2	4:9 0:7	10:9 1:5	16:9 2:4
50	2 12:5	2 12:9	2 06:5	5:0 0:7	11:0 1:6	17:0 2:4
51	2 12:8	2 13:1	2 06:7	5:1 0:7	11:1 1:6	17:1 2:4
52	2 13:0	2 13:4	2 06:9	5:2 0:7	11:2 1:6	17:2 2:4
53	2 13:3	2 13:6	2 07:2	5:3 0:8	11:3 1:6	17:3 2:5
54	2 13:5	2 13:9	2 07:4	5:4 0:8	11:4 1:6	17:4 2:5
55	2 13:8	2 14:1	2 07:7	5:5 0:8	11:5 1:6	17:5 2:5
56	2 14:0	2 14:4	2 07:9	5:6 0:8	11:6 1:6	17:6 2:5
57	2 14:3	2 14:6	2 08:1	5:7 0:8	11:7 1:7	17:7 2:5
58	2 14:5	2 14:9	2 08:4	5:8 0:8	11:8 1:7	17:8 2:5
59	2 14:8	2 15:1	2 08:6	5:9 0:8	11:9 1:7	17:9 2:5
60	2 15:0	2 15:4	2 08:9	6:0 0:9	12:0 1:7	18:0 2:6

9 ^m	SUN PLANETS	ARIES	MOON	ν or Corr ⁿ d	ν or Corr ⁿ d	ν or Corr ⁿ d
00	2 15:0	2 15:4	2 08:9	0:0 0:0	6:0 1:0	12:0 1:9
01	2 15:3	2 15:6	2 09:1	0:1 0:0	6:1 1:0	12:1 1:9
02	2 15:5	2 15:9	2 09:3	0:2 0:0	6:2 1:0	12:2 1:9
03	2 15:8	2 16:1	2 09:6	0:3 0:0	6:3 1:0	12:3 1:9
04	2 16:0	2 16:4	2 09:8	0:4 0:1	6:4 1:0	12:4 2:0
05	2 16:3	2 16:6	2 10:0	0:5 0:1	6:5 1:0	12:5 2:0
06	2 16:5	2 16:9	2 10:3	0:6 0:1	6:6 1:0	12:6 2:0
07	2 16:8	2 17:1	2 10:5	0:7 0:1	6:7 1:1	12:7 2:0
08	2 17:0	2 17:4	2 10:8	0:8 0:1	6:8 1:1	12:8 2:0
09	2 17:3	2 17:6	2 11:0	0:9 0:1	6:9 1:1	12:9 2:0
10	2 17:5	2 17:9	2 11:2	1:0 0:2	7:0 1:1	13:0 2:1
11	2 17:8	2 18:1	2 11:5	1:1 0:2	7:1 1:1	13:1 2:1
12	2 18:0	2 18:4	2 11:7	1:2 0:2	7:2 1:1	13:2 2:1
13	2 18:3	2 18:6	2 12:0	1:3 0:2	7:3 1:2	13:3 2:1
14	2 18:5	2 18:9	2 12:2	1:4 0:2	7:4 1:2	13:4 2:1
15	2 18:8	2 19:1	2 12:4	1:5 0:2	7:5 1:2	13:5 2:1
16	2 19:0	2 19:4	2 12:7	1:6 0:3	7:6 1:2	13:6 2:2
17	2 19:3	2 19:6	2 12:9	1:7 0:3	7:7 1:2	13:7 2:2
18	2 19:5	2 19:9	2 13:1	1:8 0:3	7:8 1:2	13:8 2:2
19	2 19:8	2 20:1	2 13:4	1:9 0:3	7:9 1:3	13:9 2:2
20	2 20:0	2 20:4	2 13:6	2:0 0:3	8:0 1:3	14:0 2:2
21	2 20:3	2 20:6	2 13:9	2:1 0:3	8:1 1:3	14:1 2:2
22	2 20:5	2 20:9	2 14:1	2:2 0:3	8:2 1:3	14:2 2:2
23	2 20:8	2 21:1	2 14:3	2:3 0:4	8:3 1:3	14:3 2:3
24	2 21:0	2 21:4	2 14:6	2:4 0:4	8:4 1:3	14:4 2:3
25	2 21:3	2 21:6	2 14:8	2:5 0:4	8:5 1:3	14:5 2:3
26	2 21:5	2 21:9	2 15:1	2:6 0:4	8:6 1:4	14:6 2:3
27	2 21:8	2 22:1	2 15:3	2:7 0:4	8:7 1:4	14:7 2:3
28	2 22:0	2 22:4	2 15:5	2:8 0:4	8:8 1:4	14:8 2:3
29	2 22:3	2 22:6	2 15:8	2:9 0:5	8:9 1:4	14:9 2:4
30	2 22:5	2 22:9	2 16:0	3:0 0:5	9:0 1:4	15:0 2:4
31	2 22:8	2 23:1	2 16:2	3:1 0:5	9:1 1:4	15:1 2:4
32	2 23:0	2 23:4	2 16:5	3:2 0:5	9:2 1:5	15:2 2:4
33	2 23:3	2 23:6	2 16:7	3:3 0:5	9:3 1:5	15:3 2:4
34	2 23:5	2 23:9	2 17:0	3:4 0:5	9:4 1:5	15:4 2:4
35	2 23:8	2 24:1	2 17:2	3:5 0:6	9:5 1:5	15:5 2:5
36	2 24:0	2 24:4	2 17:4	3:6 0:6	9:6 1:5	15:6 2:5
37	2 24:3	2 24:6	2 17:7	3:7 0:6	9:7 1:5	15:7 2:5
38	2 24:5	2 24:9	2 17:9	3:8 0:6	9:8 1:6	15:8 2:5
39	2 24:8	2 25:1	2 18:2	3:9 0:6	9:9 1:6	15:9 2:5
40	2 25:0	2 25:4	2 18:4	4:0 0:6	10:0 1:6	16:0 2:5
41	2 25:3	2 25:6	2 18:6	4:1 0:6	10:1 1:6	16:1 2:5
42	2 25:5	2 25:9	2 18:9	4:2 0:7	10:2 1:6	16:2 2:6
43	2 25:8	2 26:1	2 19:1	4:3 0:7	10:3 1:6	16:3 2:6
44	2 26:0	2 26:4	2 19:3	4:4 0:7	10:4 1:6	16:4 2:6
45	2 26:3	2 26:7	2 19:6	4:5 0:7	10:5 1:7	16:5 2:6
46	2 26:5	2 26:9	2 19:8	4:6 0:7	10:6 1:7	16:6 2:6
47	2 26:8	2 27:2	2 20:1	4:7 0:7	10:7 1:7	16:7 2:6
48	2 27:0	2 27:4	2 20:3	4:8 0:8	10:8 1:7	16:8 2:7
49	2 27:3	2 27:7	2 20:5	4:9 0:8	10:9 1:7	16:9 2:7
50	2 27:5	2 27:9	2 20:8	5:0 0:8	11:0 1:7	17:0 2:7
51	2 27:8	2 28:2	2 21:0	5:1 0:8	11:1 1:8	17:1 2:7
52	2 28:0	2 28:4	2 21:3	5:2 0:8	11:2 1:8	17:2 2:7
53	2 28:3	2 28:7	2 21:5	5:3 0:8	11:3 1:8	17:3 2:7
54	2 28:5	2 28:9	2 21:7	5:4 0:9	11:4 1:8	17:4 2:8
55	2 28:8	2 29:2	2 22:0	5:5 0:9	11:5 1:8	17:5 2:8
56	2 29:0	2 29:4	2 22:2	5:6 0:9	11:6 1:8	17:6 2:8
57	2 29:3	2 29:7	2 22:5	5:7 0:9	11:7 1:9	17:7 2:8
58	2 29:5	2 29:9	2 22:7	5:8 0:9	11:8 1:9	17:8 2:8
59	2 29:8	2 30:2	2 22:9	5:9 0:9	11:9 1:9	17:9 2:8
60	2 30:0	2 30:4	2 23:2	6:0 1:0	12:0 1:9	18:0 2:9

10 ^m	SUN PLANETS	ARIES	MOON	ν or d	Corr ⁿ	ν or d	Corr ⁿ	ν or d	Corr ⁿ
s	° /	° /	° /	/	/	/	/	/	/
00	2 30.0	2 30.4	2 23.2	0.0	0.0	6.0	1.1	12.0	2.1
01	2 30.3	2 30.7	2 23.4	0.1	0.0	6.1	1.1	12.1	2.1
02	2 30.5	2 30.9	2 23.6	0.2	0.0	6.2	1.1	12.2	2.1
03	2 30.8	2 31.2	2 23.9	0.3	0.1	6.3	1.1	12.3	2.2
04	2 31.0	2 31.4	2 24.1	0.4	0.1	6.4	1.1	12.4	2.2
05	2 31.3	2 31.7	2 24.4	0.5	0.1	6.5	1.1	12.5	2.2
06	2 31.5	2 31.9	2 24.6	0.6	0.1	6.6	1.2	12.6	2.2
07	2 31.8	2 32.2	2 24.8	0.7	0.1	6.7	1.2	12.7	2.2
08	2 32.0	2 32.4	2 25.1	0.8	0.1	6.8	1.2	12.8	2.2
09	2 32.3	2 32.7	2 25.3	0.9	0.2	6.9	1.2	12.9	2.3
10	2 32.5	2 32.9	2 25.6	1.0	0.2	7.0	1.2	13.0	2.3
11	2 32.8	2 33.2	2 25.8	1.1	0.2	7.1	1.2	13.1	2.3
12	2 33.0	2 33.4	2 26.0	1.2	0.2	7.2	1.3	13.2	2.3
13	2 33.3	2 33.7	2 26.3	1.3	0.2	7.3	1.3	13.3	2.3
14	2 33.5	2 33.9	2 26.5	1.4	0.2	7.4	1.3	13.4	2.3
15	2 33.8	2 34.2	2 26.7	1.5	0.3	7.5	1.3	13.5	2.4
16	2 34.0	2 34.4	2 27.0	1.6	0.3	7.6	1.3	13.6	2.4
17	2 34.3	2 34.7	2 27.2	1.7	0.3	7.7	1.3	13.7	2.4
18	2 34.5	2 34.9	2 27.5	1.8	0.3	7.8	1.4	13.8	2.4
19	2 34.8	2 35.2	2 27.7	1.9	0.3	7.9	1.4	13.9	2.4
20	2 35.0	2 35.4	2 27.9	2.0	0.4	8.0	1.4	14.0	2.5
21	2 35.3	2 35.7	2 28.2	2.1	0.4	8.1	1.4	14.1	2.5
22	2 35.5	2 35.9	2 28.4	2.2	0.4	8.2	1.4	14.2	2.5
23	2 35.8	2 36.2	2 28.7	2.3	0.4	8.3	1.5	14.3	2.5
24	2 36.0	2 36.4	2 28.9	2.4	0.4	8.4	1.5	14.4	2.5
25	2 36.3	2 36.7	2 29.1	2.5	0.4	8.5	1.5	14.5	2.5
26	2 36.5	2 36.9	2 29.4	2.6	0.5	8.6	1.5	14.6	2.6
27	2 36.8	2 37.2	2 29.6	2.7	0.5	8.7	1.5	14.7	2.6
28	2 37.0	2 37.4	2 29.8	2.8	0.5	8.8	1.5	14.8	2.6
29	2 37.3	2 37.7	2 30.1	2.9	0.5	8.9	1.6	14.9	2.6
30	2 37.5	2 37.9	2 30.3	3.0	0.5	9.0	1.6	15.0	2.6
31	2 37.8	2 38.2	2 30.6	3.1	0.5	9.1	1.6	15.1	2.6
32	2 38.0	2 38.4	2 30.8	3.2	0.6	9.2	1.6	15.2	2.7
33	2 38.3	2 38.7	2 31.0	3.3	0.6	9.3	1.6	15.3	2.7
34	2 38.5	2 38.9	2 31.3	3.4	0.6	9.4	1.6	15.4	2.7
35	2 38.8	2 39.2	2 31.5	3.5	0.6	9.5	1.7	15.5	2.7
36	2 39.0	2 39.4	2 31.8	3.6	0.6	9.6	1.7	15.6	2.7
37	2 39.3	2 39.7	2 32.0	3.7	0.6	9.7	1.7	15.7	2.7
38	2 39.5	2 39.9	2 32.2	3.8	0.7	9.8	1.7	15.8	2.8
39	2 39.8	2 40.2	2 32.5	3.9	0.7	9.9	1.7	15.9	2.8
40	2 40.0	2 40.4	2 32.7	4.0	0.7	10.0	1.8	16.0	2.8
41	2 40.3	2 40.7	2 32.9	4.1	0.7	10.1	1.8	16.1	2.8
42	2 40.5	2 40.9	2 33.2	4.2	0.7	10.2	1.8	16.2	2.8
43	2 40.8	2 41.2	2 33.4	4.3	0.8	10.3	1.8	16.3	2.9
44	2 41.0	2 41.4	2 33.7	4.4	0.8	10.4	1.8	16.4	2.9
45	2 41.3	2 41.7	2 33.9	4.5	0.8	10.5	1.8	16.5	2.9
46	2 41.5	2 41.9	2 34.1	4.6	0.8	10.6	1.9	16.6	2.9
47	2 41.8	2 42.2	2 34.4	4.7	0.8	10.7	1.9	16.7	2.9
48	2 42.0	2 42.4	2 34.6	4.8	0.8	10.8	1.9	16.8	2.9
49	2 42.3	2 42.7	2 34.9	4.9	0.9	10.9	1.9	16.9	3.0
50	2 42.5	2 42.9	2 35.1	5.0	0.9	11.0	1.9	17.0	3.0
51	2 42.8	2 43.2	2 35.3	5.1	0.9	11.1	1.9	17.1	3.0
52	2 43.0	2 43.4	2 35.6	5.2	0.9	11.2	2.0	17.2	3.0
53	2 43.3	2 43.7	2 35.8	5.3	0.9	11.3	2.0	17.3	3.0
54	2 43.5	2 43.9	2 36.1	5.4	0.9	11.4	2.0	17.4	3.0
55	2 43.8	2 44.2	2 36.3	5.5	1.0	11.5	2.0	17.5	3.1
56	2 44.0	2 44.4	2 36.5	5.6	1.0	11.6	2.0	17.6	3.1
57	2 44.3	2 44.7	2 36.8	5.7	1.0	11.7	2.0	17.7	3.1
58	2 44.5	2 45.0	2 37.0	5.8	1.0	11.8	2.1	17.8	3.1
59	2 44.8	2 45.2	2 37.2	5.9	1.0	11.9	2.1	17.9	3.1
60	2 45.0	2 45.5	2 37.5	6.0	1.1	12.0	2.1	18.0	3.2

11 ^m	SUN PLANETS	ARIES	MOON	ν or d	Corr ⁿ	ν or d	Corr ⁿ	ν or d	Corr ⁿ
s	° /	° /	° /	/	/	/	/	/	/
00	2 45.0	2 45.5	2 37.5	0.0	0.0	6.0	1.2	12.0	2.3
01	2 45.3	2 45.7	2 37.7	0.1	0.0	6.1	1.2	12.1	2.3
02	2 45.5	2 46.0	2 38.0	0.2	0.0	6.2	1.2	12.2	2.3
03	2 45.8	2 46.2	2 38.2	0.3	0.1	6.3	1.2	12.3	2.4
04	2 46.0	2 46.5	2 38.4	0.4	0.1	6.4	1.2	12.4	2.4
05	2 46.3	2 46.7	2 38.7	0.5	0.1	6.5	1.2	12.5	2.4
06	2 46.5	2 47.0	2 38.9	0.6	0.1	6.6	1.3	12.6	2.4
07	2 46.8	2 47.2	2 39.2	0.7	0.1	6.7	1.3	12.7	2.4
08	2 47.0	2 47.5	2 39.4	0.8	0.2	6.8	1.3	12.8	2.5
09	2 47.3	2 47.7	2 39.6	0.9	0.2	6.9	1.3	12.9	2.5
10	2 47.5	2 48.0	2 39.9	1.0	0.2	7.0	1.3	13.0	2.5
11	2 47.8	2 48.2	2 40.1	1.1	0.2	7.1	1.4	13.1	2.5
12	2 48.0	2 48.5	2 40.3	1.2	0.2	7.2	1.4	13.2	2.5
13	2 48.3	2 48.7	2 40.6	1.3	0.2	7.3	1.4	13.3	2.5
14	2 48.5	2 49.0	2 40.8	1.4	0.3	7.4	1.4	13.4	2.6
15	2 48.8	2 49.2	2 41.1	1.5	0.3	7.5	1.4	13.5	2.6
16	2 49.0	2 49.5	2 41.3	1.6	0.3	7.6	1.5	13.6	2.6
17	2 49.3	2 49.7	2 41.5	1.7	0.3	7.7	1.5	13.7	2.6
18	2 49.5	2 50.0	2 41.8	1.8	0.3	7.8	1.5	13.8	2.6
19	2 49.8	2 50.2	2 42.0	1.9	0.4	7.9	1.5	13.9	2.7
20	2 50.0	2 50.5	2 42.3	2.0	0.4	8.0	1.5	14.0	2.7
21	2 50.3	2 50.7	2 42.5	2.1	0.4	8.1	1.6	14.1	2.7
22	2 50.5	2 51.0	2 42.7	2.2	0.4	8.2	1.6	14.2	2.7
23	2 50.8	2 51.2	2 43.0	2.3	0.4	8.3	1.6	14.3	2.7
24	2 51.0	2 51.5	2 43.2	2.4	0.5	8.4	1.6	14.4	2.8
25	2 51.3	2 51.7	2 43.4	2.5	0.5	8.5	1.6	14.5	2.8
26	2 51.5	2 52.0	2 43.7	2.6	0.5	8.6	1.6	14.6	2.8
27	2 51.8	2 52.2	2 43.9	2.7	0.5	8.7	1.7	14.7	2.8
28	2 52.0	2 52.5	2 44.2	2.8	0.5	8.8	1.7	14.8	2.8
29	2 52.3	2 52.7	2 44.4	2.9	0.6	8.9	1.7	14.9	2.9
30	2 52.5	2 53.0	2 44.6	3.0	0.6	9.0	1.7	15.0	2.9
31	2 52.8	2 53.2	2 44.9	3.1	0.6	9.1	1.7	15.1	2.9
32	2 53.0	2 53.5	2 45.1	3.2	0.6	9.2	1.8	15.2	2.9
33	2 53.3	2 53.7	2 45.4	3.3	0.6	9.3	1.8	15.3	2.9
34	2 53.5	2 54.0	2 45.6	3.4	0.7	9.4	1.8	15.4	3.0
35	2 53.8	2 54.2	2 45.8	3.5	0.7	9.5	1.8	15.5	3.0
36	2 54.0	2 54.5	2 46.1	3.6	0.7	9.6	1.8	15.6	3.0
37	2 54.3	2 54.7	2 46.3	3.7	0.7	9.7	1.9	15.7	3.0
38	2 54.5	2 55.0	2 46.6	3.8	0.7	9.8	1.9	15.8	3.0
39	2 54.8	2 55.2	2 46.8	3.9	0.7	9.9	1.9	15.9	3.0
40	2 55.0	2 55.5	2 47.0	4.0	0.8	10.0	1.9	16.0	3.1
41	2 55.3	2 55.7	2 47.3	4.1	0.8	10.1	1.9	16.1	3.1
42	2 55.5	2 56.0	2 47.5	4.2	0.8	10.2	2.0	16.2	3.1
43	2 55.8	2 56.2	2 47.7	4.3	0.8	10.3	2.0	16.3	3.1
44	2 56.0	2 56.5	2 48.0	4.4	0.8	10.4	2.0	16.4	3.1
45	2 56.3	2 56.7	2 48.2	4.5	0.9	10.5	2.0	16.5	3.2
46	2 56.5	2 57.0	2 48.5	4.6	0.9	10.6	2.0	16.6	3.2
47	2 56.8	2 57.2	2 48.7	4.7	0.9	10.7	2.1	16.7	3.2
48	2 57.0	2 57.5	2 48.9	4.8	0.9	10.8	2.1	16.8	3.2
49	2 57.3	2 57.7	2 49.2	4.9	0.9	10.9	2.1	16.9	3.2
50	2 57.5	2 58.0	2 49.4	5.0	1.0	11.0	2.1	17.0	3.3
51	2 57.8	2 58.2	2 49.7	5.1	1.0	11.1	2.1	17.1	3.3
52	2 58.0	2 58.5	2 49.9	5.2	1.0	11.2	2.1	17.2	3.3
53	2 58.3	2 58.7	2 50.1	5.3	1.0	11.3	2.2	17.3	3.3
54	2 58.5	2 59.0	2 50.4	5.4	1.0	11.4	2.2	17.4	3.3
55	2 58.8	2 59.2	2 50.6	5.5	1.1	11.5	2.2	17.5	3.4
56	2 59.0	2 59.5	2 50.8	5.6	1.1	11.6	2.2	17.6	3.4
57	2 59.3	2 59.7	2 51.1	5.7	1.1	11.7	2.2	17.7	3.4
58	2 59.5	3 00.0	2 51.3	5.8	1.1	11.8	2.3	17.8	3.4
59	2 59.8	3 00.2	2 51.6	5.9	1.1	11.9	2.3	17.9	3.4
60	3 00.0	3 00.5	2 51.8	6.0	1.2	12.0	2.3	18.0	3.5

12 ^m	SUN PLANETS	ARIES	MOON	ϑ or d	Corr ⁿ	ϑ or d	Corr ⁿ	ϑ or d	Corr ⁿ
s	° /	° /	° /	/ /	/ /	/ /	/ /	/ /	/ /
00	3 00-0	3 00-5	2 51-8	0-0	0-0	6-0	1-3	12-0	2-5
01	3 00-3	3 00-7	2 52-0	0-1	0-0	6-1	1-3	12-1	2-5
02	3 00-5	3 01-0	2 52-3	0-2	0-0	6-2	1-3	12-2	2-5
03	3 00-8	3 01-2	2 52-5	0-3	0-1	6-3	1-3	12-3	2-6
04	3 01-0	3 01-5	2 52-8	0-4	0-1	6-4	1-3	12-4	2-6
05	3 01-3	3 01-7	2 53-0	0-5	0-1	6-5	1-4	12-5	2-6
06	3 01-5	3 02-0	2 53-2	0-6	0-1	6-6	1-4	12-6	2-6
07	3 01-8	3 02-2	2 53-5	0-7	0-1	6-7	1-4	12-7	2-6
08	3 02-0	3 02-5	2 53-7	0-8	0-2	6-8	1-4	12-8	2-7
09	3 02-3	3 02-7	2 53-9	0-9	0-2	6-9	1-4	12-9	2-7
10	3 02-5	3 03-0	2 54-2	1-0	0-2	7-0	1-5	13-0	2-7
11	3 02-8	3 03-3	2 54-4	1-1	0-2	7-1	1-5	13-1	2-7
12	3 03-0	3 03-5	2 54-7	1-2	0-3	7-2	1-5	13-2	2-8
13	3 03-3	3 03-8	2 54-9	1-3	0-3	7-3	1-5	13-3	2-8
14	3 03-5	3 04-0	2 55-1	1-4	0-3	7-4	1-5	13-4	2-8
15	3 03-8	3 04-3	2 55-4	1-5	0-3	7-5	1-6	13-5	2-8
16	3 04-0	3 04-5	2 55-6	1-6	0-3	7-6	1-6	13-6	2-8
17	3 04-3	3 04-8	2 55-9	1-7	0-4	7-7	1-6	13-7	2-9
18	3 04-5	3 05-0	2 56-1	1-8	0-4	7-8	1-6	13-8	2-9
19	3 04-8	3 05-3	2 56-3	1-9	0-4	7-9	1-6	13-9	2-9
20	3 05-0	3 05-5	2 56-6	2-0	0-4	8-0	1-7	14-0	2-9
21	3 05-3	3 05-8	2 56-8	2-1	0-4	8-1	1-7	14-1	2-9
22	3 05-5	3 06-0	2 57-0	2-2	0-5	8-2	1-7	14-2	3-0
23	3 05-8	3 06-3	2 57-3	2-3	0-5	8-3	1-7	14-3	3-0
24	3 06-0	3 06-5	2 57-5	2-4	0-5	8-4	1-8	14-4	3-0
25	3 06-3	3 06-8	2 57-8	2-5	0-5	8-5	1-8	14-5	3-0
26	3 06-5	3 07-0	2 58-0	2-6	0-5	8-6	1-8	14-6	3-0
27	3 06-8	3 07-3	2 58-2	2-7	0-6	8-7	1-8	14-7	3-1
28	3 07-0	3 07-5	2 58-5	2-8	0-6	8-8	1-8	14-8	3-1
29	3 07-3	3 07-8	2 58-7	2-9	0-6	8-9	1-9	14-9	3-1
30	3 07-5	3 08-0	2 59-0	3-0	0-6	9-0	1-9	15-0	3-1
31	3 07-8	3 08-3	2 59-2	3-1	0-6	9-1	1-9	15-1	3-1
32	3 08-0	3 08-5	2 59-4	3-2	0-7	9-2	1-9	15-2	3-2
33	3 08-3	3 08-8	2 59-7	3-3	0-7	9-3	1-9	15-3	3-2
34	3 08-5	3 09-0	2 59-9	3-4	0-7	9-4	2-0	15-4	3-2
35	3 08-8	3 09-3	3 00-2	3-5	0-7	9-5	2-0	15-5	3-2
36	3 09-0	3 09-5	3 00-4	3-6	0-8	9-6	2-0	15-6	3-3
37	3 09-3	3 09-8	3 00-6	3-7	0-8	9-7	2-0	15-7	3-3
38	3 09-5	3 10-0	3 00-9	3-8	0-8	9-8	2-0	15-8	3-3
39	3 09-8	3 10-3	3 01-1	3-9	0-8	9-9	2-1	15-9	3-3
40	3 10-0	3 10-5	3 01-3	4-0	0-8	10-0	2-1	16-0	3-3
41	3 10-3	3 10-8	3 01-6	4-1	0-9	10-1	2-1	16-1	3-4
42	3 10-5	3 11-0	3 01-8	4-2	0-9	10-2	2-1	16-2	3-4
43	3 10-8	3 11-3	3 02-1	4-3	0-9	10-3	2-1	16-3	3-4
44	3 11-0	3 11-5	3 02-3	4-4	0-9	10-4	2-2	16-4	3-4
45	3 11-3	3 11-8	3 02-5	4-5	0-9	10-5	2-2	16-5	3-4
46	3 11-5	3 12-0	3 02-8	4-6	1-0	10-6	2-2	16-6	3-5
47	3 11-8	3 12-3	3 03-0	4-7	1-0	10-7	2-2	16-7	3-5
48	3 12-0	3 12-5	3 03-3	4-8	1-0	10-8	2-3	16-8	3-5
49	3 12-3	3 12-8	3 03-5	4-9	1-0	10-9	2-3	16-9	3-5
50	3 12-5	3 13-0	3 03-7	5-0	1-0	11-0	2-3	17-0	3-5
51	3 12-8	3 13-3	3 04-0	5-1	1-1	11-1	2-3	17-1	3-6
52	3 13-0	3 13-5	3 04-2	5-2	1-1	11-2	2-3	17-2	3-6
53	3 13-3	3 13-8	3 04-4	5-3	1-1	11-3	2-4	17-3	3-6
54	3 13-5	3 14-0	3 04-7	5-4	1-1	11-4	2-4	17-4	3-6
55	3 13-8	3 14-3	3 04-9	5-5	1-1	11-5	2-4	17-5	3-6
56	3 14-0	3 14-5	3 05-2	5-6	1-2	11-6	2-4	17-6	3-7
57	3 14-3	3 14-8	3 05-4	5-7	1-2	11-7	2-4	17-7	3-7
58	3 14-5	3 15-0	3 05-6	5-8	1-2	11-8	2-5	17-8	3-7
59	3 14-8	3 15-3	3 05-9	5-9	1-2	11-9	2-5	17-9	3-7
60	3 15-0	3 15-5	3 06-1	6-0	1-3	12-0	2-5	18-0	3-8

13 ^m	SUN PLANETS	ARIES	MOON	ϑ or d	Corr ⁿ	ϑ or d	Corr ⁿ	ϑ or d	Corr ⁿ
s	° /	° /	° /	/ /	/ /	/ /	/ /	/ /	/ /
00	3 15-0	3 15-5	3 06-1	0-0	0-0	6-0	1-4	12-0	2-7
01	3 15-3	3 15-8	3 06-4	0-1	0-0	6-1	1-4	12-1	2-7
02	3 15-5	3 16-0	3 06-6	0-2	0-0	6-2	1-4	12-2	2-7
03	3 15-8	3 16-3	3 06-8	0-3	0-1	6-3	1-4	12-3	2-8
04	3 16-0	3 16-5	3 07-1	0-4	0-1	6-4	1-4	12-4	2-8
05	3 16-3	3 16-8	3 07-3	0-5	0-1	6-5	1-5	12-5	2-8
06	3 16-5	3 17-0	3 07-5	0-6	0-1	6-6	1-5	12-6	2-8
07	3 16-8	3 17-3	3 07-8	0-7	0-2	6-7	1-5	12-7	2-9
08	3 17-0	3 17-5	3 08-0	0-8	0-2	6-8	1-5	12-8	2-9
09	3 17-3	3 17-8	3 08-3	0-9	0-2	6-9	1-6	12-9	2-9
10	3 17-5	3 18-0	3 08-5	1-0	0-2	7-0	1-6	13-0	2-9
11	3 17-8	3 18-3	3 08-7	1-1	0-2	7-1	1-6	13-1	2-9
12	3 18-0	3 18-5	3 09-0	1-2	0-3	7-2	1-6	13-2	3-0
13	3 18-3	3 18-8	3 09-2	1-3	0-3	7-3	1-6	13-3	3-0
14	3 18-5	3 19-0	3 09-5	1-4	0-3	7-4	1-7	13-4	3-0
15	3 18-8	3 19-3	3 09-7	1-5	0-3	7-5	1-7	13-5	3-0
16	3 19-0	3 19-5	3 09-9	1-6	0-4	7-6	1-7	13-6	3-1
17	3 19-3	3 19-8	3 10-2	1-7	0-4	7-7	1-7	13-7	3-1
18	3 19-5	3 20-0	3 10-4	1-8	0-4	7-8	1-8	13-8	3-1
19	3 19-8	3 20-3	3 10-7	1-9	0-4	7-9	1-8	13-9	3-1
20	3 20-0	3 20-5	3 10-9	2-0	0-5	8-0	1-8	14-0	3-2
21	3 20-3	3 20-8	3 11-1	2-1	0-5	8-1	1-8	14-1	3-2
22	3 20-5	3 21-0	3 11-4	2-2	0-5	8-2	1-8	14-2	3-2
23	3 20-8	3 21-3	3 11-6	2-3	0-5	8-3	1-9	14-3	3-2
24	3 21-0	3 21-6	3 11-8	2-4	0-5	8-4	1-9	14-4	3-2
25	3 21-3	3 21-8	3 12-1	2-5	0-6	8-5	1-9	14-5	3-3
26	3 21-5	3 22-1	3 12-3	2-6	0-6	8-6	1-9	14-6	3-3
27	3 21-8	3 22-3	3 12-6	2-7	0-6	8-7	2-0	14-7	3-3
28	3 22-0	3 22-6	3 12-8	2-8	0-6	8-8	2-0	14-8	3-3
29	3 22-3	3 22-8	3 13-0	2-9	0-7	8-9	2-0	14-9	3-4
30	3 22-5	3 23-1	3 13-3	3-0	0-7	9-0	2-0	15-0	3-4
31	3 22-8	3 23-3	3 13-5	3-1	0-7	9-1	2-0	15-1	3-4
32	3 23-0	3 23-6	3 13-8	3-2	0-7	9-2	2-1	15-2	3-4
33	3 23-3	3 23-8	3 14-0	3-3	0-7	9-3	2-1	15-3	3-4
34	3 23-5	3 24-1	3 14-2	3-4	0-8	9-4	2-1	15-4	3-5
35	3 23-8	3 24-3	3 14-5	3-5	0-8	9-5	2-1	15-5	3-5
36	3 24-0	3 24-6	3 14-7	3-6	0-8	9-6	2-2	15-6	3-5
37	3 24-3	3 24-8	3 14-9	3-7	0-8	9-7	2-2	15-7	3-5
38	3 24-5	3 25-1	3 15-2	3-8	0-9	9-8	2-2	15-8	3-6
39	3 24-8	3 25-3	3 15-4	3-9	0-9	9-9	2-2	15-9	3-6
40	3 25-0	3 25-6	3 15-7	4-0	0-9	10-0	2-3	16-0	3-6
41	3 25-3	3 25-8	3 15-9	4-1	0-9	10-1	2-3	16-1	3-6
42	3 25-5	3 26-1	3 16-1	4-2	0-9	10-2	2-3	16-2	3-6
43	3 25-8	3 26-3	3 16-4	4-3	1-0	10-3	2-3	16-3	3-7
44	3 26-0	3 26-6	3 16-6	4-4	1-0	10-4	2-3	16-4	3-7
45	3 26-3	3 26-8	3 16-9	4-5	1-0	10-5	2-4	16-5	3-7
46	3 26-5	3 27-1	3 17-1	4-6	1-0	10-6	2-4	16-6	3-7
47	3 26-8	3 27-3	3 17-3	4-7	1-1	10-7	2-4	16-7	3-8
48	3 27-0	3 27-6	3 17-6	4-8	1-1	10-8	2-4	16-8	3-8
49	3 27-3	3 27-8	3 17-8	4-9	1-1	10-9	2-5	16-9	3-8
50	3 27-5	3 28-1	3 18-0	5-0	1-1	11-0	2-5	17-0	3-8
51	3 27-8	3 28-3	3 18-3	5-1	1-1	11-1	2-5	17-1	3-8
52	3 28-0	3 28-6	3 18-5	5-2	1-2	11-2	2-5	17-2	3-9
53	3 28-3	3 28-8	3 18-8	5-3	1-2	11-3	2-5	17-3	3-9
54	3 28-5	3 29-1	3 19-0	5-4	1-2	11-4	2-6	17-4	3-9
55	3 28-8	3 29-3	3 19-2	5-5	1-2	11-5	2-6	17-5	3-9
56	3 29-0	3 29-6	3 19-5	5-6	1-3	11-6	2-6	17-6	4-0
57	3 29-3	3 29-8	3 19-7	5-7	1-3	11-7	2-6	17-7	4-0
58	3 29-5	3 30-1	3 20-0	5-8	1-3	11-8	2-7	17-8	4-0
59	3 29-8	3 30-3	3 20-2	5-9	1-3	11-9	2-7	17-9	4-0
60	3 30-0	3 30-6	3 20-4	6-0	1-4	12-0	2-7	18-0	4-1

14 ^m	SUN PLANETS	ARIES	MOON	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ
s	o	o	o	o	o	o
00	3 30-0	3 30-6	3 20-4	0-0 0-0	6-0 1-5	12-0 2-9
01	3 30-3	3 30-8	3 20-7	0-1 0-0	6-1 1-5	12-1 2-9
02	3 30-5	3 31-1	3 20-9	0-2 0-0	6-2 1-5	12-2 2-9
03	3 30-8	3 31-3	3 21-1	0-3 0-1	6-3 1-5	12-3 3-0
04	3 31-0	3 31-6	3 21-4	0-4 0-1	6-4 1-5	12-4 3-0
05	3 31-3	3 31-8	3 21-6	0-5 0-1	6-5 1-6	12-5 3-0
06	3 31-5	3 32-1	3 21-9	0-6 0-1	6-6 1-6	12-6 3-0
07	3 31-8	3 32-3	3 22-1	0-7 0-2	6-7 1-6	12-7 3-1
08	3 32-0	3 32-6	3 22-3	0-8 0-2	6-8 1-6	12-8 3-1
09	3 32-3	3 32-8	3 22-6	0-9 0-2	6-9 1-7	12-9 3-1
10	3 32-5	3 33-1	3 22-8	1-0 0-2	7-0 1-7	13-0 3-1
11	3 32-8	3 33-3	3 23-1	1-1 0-3	7-1 1-7	13-1 3-2
12	3 33-0	3 33-6	3 23-3	1-2 0-3	7-2 1-7	13-2 3-2
13	3 33-3	3 33-8	3 23-5	1-3 0-3	7-3 1-8	13-3 3-2
14	3 33-5	3 34-1	3 23-8	1-4 0-3	7-4 1-8	13-4 3-2
15	3 33-8	3 34-3	3 24-0	1-5 0-4	7-5 1-8	13-5 3-3
16	3 34-0	3 34-6	3 24-3	1-6 0-4	7-6 1-8	13-6 3-3
17	3 34-3	3 34-8	3 24-5	1-7 0-4	7-7 1-9	13-7 3-3
18	3 34-5	3 35-1	3 24-7	1-8 0-4	7-8 1-9	13-8 3-3
19	3 34-8	3 35-3	3 25-0	1-9 0-5	7-9 1-9	13-9 3-4
20	3 35-0	3 35-6	3 25-2	2-0 0-5	8-0 1-9	14-0 3-4
21	3 35-3	3 35-8	3 25-4	2-1 0-5	8-1 2-0	14-1 3-4
22	3 35-5	3 36-1	3 25-7	2-2 0-5	8-2 2-0	14-2 3-4
23	3 35-8	3 36-3	3 25-9	2-3 0-6	8-3 2-0	14-3 3-5
24	3 36-0	3 36-6	3 26-2	2-4 0-6	8-4 2-0	14-4 3-5
25	3 36-3	3 36-8	3 26-4	2-5 0-6	8-5 2-1	14-5 3-5
26	3 36-5	3 37-1	3 26-6	2-6 0-6	8-6 2-1	14-6 3-5
27	3 36-8	3 37-3	3 26-9	2-7 0-7	8-7 2-1	14-7 3-6
28	3 37-0	3 37-6	3 27-1	2-8 0-7	8-8 2-1	14-8 3-6
29	3 37-3	3 37-8	3 27-4	2-9 0-7	8-9 2-2	14-9 3-6
30	3 37-5	3 38-1	3 27-6	3-0 0-7	9-0 2-2	15-0 3-6
31	3 37-8	3 38-3	3 27-8	3-1 0-7	9-1 2-2	15-1 3-6
32	3 38-0	3 38-6	3 28-1	3-2 0-8	9-2 2-2	15-2 3-7
33	3 38-3	3 38-8	3 28-3	3-3 0-8	9-3 2-2	15-3 3-7
34	3 38-5	3 39-1	3 28-5	3-4 0-8	9-4 2-3	15-4 3-7
35	3 38-8	3 39-3	3 28-8	3-5 0-8	9-5 2-3	15-5 3-7
36	3 39-0	3 39-6	3 29-0	3-6 0-9	9-6 2-3	15-6 3-8
37	3 39-3	3 39-9	3 29-3	3-7 0-9	9-7 2-3	15-7 3-8
38	3 39-5	3 40-1	3 29-5	3-8 0-9	9-8 2-4	15-8 3-8
39	3 39-8	3 40-4	3 29-7	3-9 0-9	9-9 2-4	15-9 3-8
40	3 40-0	3 40-6	3 30-0	4-0 1-0	10-0 2-4	16-0 3-9
41	3 40-3	3 40-9	3 30-2	4-1 1-0	10-1 2-4	16-1 3-9
42	3 40-5	3 41-1	3 30-5	4-2 1-0	10-2 2-5	16-2 3-9
43	3 40-8	3 41-4	3 30-7	4-3 1-0	10-3 2-5	16-3 3-9
44	3 41-0	3 41-6	3 30-9	4-4 1-1	10-4 2-5	16-4 4-0
45	3 41-3	3 41-9	3 31-2	4-5 1-1	10-5 2-5	16-5 4-0
46	3 41-5	3 42-1	3 31-4	4-6 1-1	10-6 2-6	16-6 4-0
47	3 41-8	3 42-4	3 31-6	4-7 1-1	10-7 2-6	16-7 4-0
48	3 42-0	3 42-6	3 31-9	4-8 1-2	10-8 2-6	16-8 4-1
49	3 42-3	3 42-9	3 32-1	4-9 1-2	10-9 2-6	16-9 4-1
50	3 42-5	3 43-1	3 32-4	5-0 1-2	11-0 2-7	17-0 4-1
51	3 42-8	3 43-4	3 32-6	5-1 1-2	11-1 2-7	17-1 4-1
52	3 43-0	3 43-6	3 32-8	5-2 1-3	11-2 2-7	17-2 4-2
53	3 43-3	3 43-9	3 33-1	5-3 1-3	11-3 2-7	17-3 4-2
54	3 43-5	3 44-1	3 33-3	5-4 1-3	11-4 2-8	17-4 4-2
55	3 43-8	3 44-4	3 33-6	5-5 1-3	11-5 2-8	17-5 4-2
56	3 44-0	3 44-6	3 33-8	5-6 1-4	11-6 2-8	17-6 4-3
57	3 44-3	3 44-9	3 34-0	5-7 1-4	11-7 2-8	17-7 4-3
58	3 44-5	3 45-1	3 34-3	5-8 1-4	11-8 2-9	17-8 4-3
59	3 44-8	3 45-4	3 34-5	5-9 1-4	11-9 2-9	17-9 4-3
60	3 45-0	3 45-6	3 34-8	6-0 1-5	12-0 2-9	18-0 4-4

15 ^m	SUN PLANETS	ARIES	MOON	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ
s	o	o	o	o	o	o
00	3 45-0	3 45-6	3 34-8	0-0 0-0	6-0 1-6	12-0 3-1
01	3 45-3	3 45-9	3 35-0	0-1 0-0	6-1 1-6	12-1 3-1
02	3 45-5	3 46-1	3 35-2	0-2 0-1	6-2 1-6	12-2 3-2
03	3 45-8	3 46-4	3 35-5	0-3 0-1	6-3 1-6	12-3 3-2
04	3 46-0	3 46-6	3 35-7	0-4 0-1	6-4 1-7	12-4 3-2
05	3 46-3	3 46-9	3 35-9	0-5 0-1	6-5 1-7	12-5 3-2
06	3 46-5	3 47-1	3 36-2	0-6 0-2	6-6 1-7	12-6 3-3
07	3 46-8	3 47-4	3 36-4	0-7 0-2	6-7 1-7	12-7 3-3
08	3 47-0	3 47-6	3 36-7	0-8 0-2	6-8 1-8	12-8 3-3
09	3 47-3	3 47-9	3 36-9	0-9 0-2	6-9 1-8	12-9 3-3
10	3 47-5	3 48-1	3 37-1	1-0 0-3	7-0 1-8	13-0 3-4
11	3 47-8	3 48-4	3 37-4	1-1 0-3	7-1 1-8	13-1 3-4
12	3 48-0	3 48-6	3 37-6	1-2 0-3	7-2 1-9	13-2 3-4
13	3 48-3	3 48-9	3 37-9	1-3 0-3	7-3 1-9	13-3 3-4
14	3 48-5	3 49-1	3 38-1	1-4 0-4	7-4 1-9	13-4 3-5
15	3 48-8	3 49-4	3 38-3	1-5 0-4	7-5 1-9	13-5 3-5
16	3 49-0	3 49-6	3 38-6	1-6 0-4	7-6 2-0	13-6 3-5
17	3 49-3	3 49-9	3 38-8	1-7 0-4	7-7 2-0	13-7 3-5
18	3 49-5	3 50-1	3 39-0	1-8 0-5	7-8 2-0	13-8 3-6
19	3 49-8	3 50-4	3 39-3	1-9 0-5	7-9 2-0	13-9 3-6
20	3 50-0	3 50-6	3 39-5	2-0 0-5	8-0 2-1	14-0 3-6
21	3 50-3	3 50-9	3 39-8	2-1 0-5	8-1 2-1	14-1 3-6
22	3 50-5	3 51-1	3 40-0	2-2 0-6	8-2 2-1	14-2 3-7
23	3 50-8	3 51-4	3 40-2	2-3 0-6	8-3 2-1	14-3 3-7
24	3 51-0	3 51-6	3 40-5	2-4 0-6	8-4 2-2	14-4 3-7
25	3 51-3	3 51-9	3 40-7	2-5 0-6	8-5 2-2	14-5 3-7
26	3 51-5	3 52-1	3 41-0	2-6 0-7	8-6 2-2	14-6 3-8
27	3 51-8	3 52-4	3 41-2	2-7 0-7	8-7 2-2	14-7 3-8
28	3 52-0	3 52-6	3 41-4	2-8 0-7	8-8 2-3	14-8 3-8
29	3 52-3	3 52-9	3 41-7	2-9 0-7	8-9 2-3	14-9 3-8
30	3 52-5	3 53-1	3 41-9	3-0 0-8	9-0 2-3	15-0 3-9
31	3 52-8	3 53-4	3 42-1	3-1 0-8	9-1 2-4	15-1 3-9
32	3 53-0	3 53-6	3 42-4	3-2 0-8	9-2 2-4	15-2 3-9
33	3 53-3	3 53-9	3 42-6	3-3 0-9	9-3 2-4	15-3 4-0
34	3 53-5	3 54-1	3 42-9	3-4 0-9	9-4 2-4	15-4 4-0
35	3 53-8	3 54-4	3 43-1	3-5 0-9	9-5 2-5	15-5 4-0
36	3 54-0	3 54-6	3 43-3	3-6 0-9	9-6 2-5	15-6 4-0
37	3 54-3	3 54-9	3 43-6	3-7 1-0	9-7 2-5	15-7 4-1
38	3 54-5	3 55-1	3 43-8	3-8 1-0	9-8 2-5	15-8 4-1
39	3 54-8	3 55-4	3 44-1	3-9 1-0	9-9 2-6	15-9 4-1
40	3 55-0	3 55-6	3 44-3	4-0 1-0	10-0 2-6	16-0 4-1
41	3 55-3	3 55-9	3 44-5	4-1 1-1	10-1 2-6	16-1 4-2
42	3 55-5	3 56-1	3 44-8	4-2 1-1	10-2 2-6	16-2 4-2
43	3 55-8	3 56-4	3 45-0	4-3 1-1	10-3 2-7	16-3 4-2
44	3 56-0	3 56-6	3 45-2	4-4 1-1	10-4 2-7	16-4 4-2
45	3 56-3	3 56-9	3 45-5	4-5 1-2	10-5 2-7	16-5 4-3
46	3 56-5	3 57-1	3 45-7	4-6 1-2	10-6 2-7	16-6 4-3
47	3 56-8	3 57-4	3 46-0	4-7 1-2	10-7 2-8	16-7 4-3
48	3 57-0	3 57-6	3 46-2	4-8 1-2	10-8 2-8	16-8 4-3
49	3 57-3	3 57-9	3 46-4	4-9 1-3	10-9 2-8	16-9 4-4
50	3 57-5	3 58-2	3 46-7	5-0 1-3	11-0 2-8	17-0 4-4
51	3 57-8	3 58-4	3 46-9	5-1 1-3	11-1 2-9	17-1 4-4
52	3 58-0	3 58-7	3 47-2	5-2 1-3	11-2 2-9	17-2 4-4
53	3 58-3	3 58-9	3 47-4	5-3 1-4	11-3 2-9	17-3 4-5
54	3 58-5	3 59-2	3 47-6	5-4 1-4	11-4 2-9	17-4 4-5
55	3 58-8	3 59-4	3 47-9	5-5 1-4	11-5 3-0	17-5 4-5
56	3 59-0	3 59-7	3 48-1	5-6 1-4	11-6 3-0	17-6 4-5
57	3 59-3	3 59-9	3 48-4	5-7 1-5	11-7 3-0	17-7 4-6
58	3 59-5	4 00-2	3 48-6	5-8 1-5	11-8 3-0	17-8 4-6
59	3 59-8	4 00-4	3 48-8	5-9 1-5	11-9 3-1	17-9 4-6
60	4 00-0	4 00-7	3 49-1	6-0 1-6	12-0 3-1	18-0 4-7

16 ^m	SUN PLANETS	ARIES	MOON	ν or d	Corr ⁿ	ν or d	Corr ⁿ	ν or d	Corr ⁿ
s	° /	° /	° /	/	/	/	/	/	/
00	4 00-0	4 00-7	3 49-1	0-0	0-0	6-0	1-7	12-0	3-3
01	4 00-3	4 00-9	3 49-3	0-1	0-0	6-1	1-7	12-1	3-3
02	4 00-5	4 01-2	3 49-5	0-2	0-1	6-2	1-7	12-2	3-4
03	4 00-8	4 01-4	3 49-8	0-3	0-1	6-3	1-7	12-3	3-4
04	4 01-0	4 01-7	3 50-0	0-4	0-1	6-4	1-8	12-4	3-4
05	4 01-3	4 01-9	3 50-3	0-5	0-1	6-5	1-8	12-5	3-4
06	4 01-5	4 02-2	3 50-5	0-6	0-2	6-6	1-8	12-6	3-5
07	4 01-8	4 02-4	3 50-7	0-7	0-2	6-7	1-8	12-7	3-5
08	4 02-0	4 02-7	3 51-0	0-8	0-2	6-8	1-9	12-8	3-5
09	4 02-3	4 02-9	3 51-2	0-9	0-2	6-9	1-9	12-9	3-5
10	4 02-5	4 03-2	3 51-5	1-0	0-3	7-0	1-9	13-0	3-6
11	4 02-8	4 03-4	3 51-7	1-1	0-3	7-1	2-0	13-1	3-6
12	4 03-0	4 03-7	3 51-9	1-2	0-3	7-2	2-0	13-2	3-6
13	4 03-3	4 03-9	3 52-2	1-3	0-4	7-3	2-0	13-3	3-7
14	4 03-5	4 04-2	3 52-4	1-4	0-4	7-4	2-0	13-4	3-7
15	4 03-8	4 04-4	3 52-6	1-5	0-4	7-5	2-1	13-5	3-7
16	4 04-0	4 04-7	3 52-9	1-6	0-4	7-6	2-1	13-6	3-7
17	4 04-3	4 04-9	3 53-1	1-7	0-5	7-7	2-1	13-7	3-8
18	4 04-5	4 05-2	3 53-4	1-8	0-5	7-8	2-1	13-8	3-8
19	4 04-8	4 05-4	3 53-6	1-9	0-5	7-9	2-2	13-9	3-8
20	4 05-0	4 05-7	3 53-8	2-0	0-6	8-0	2-2	14-0	3-9
21	4 05-3	4 05-9	3 54-1	2-1	0-6	8-1	2-2	14-1	3-9
22	4 05-5	4 06-2	3 54-3	2-2	0-6	8-2	2-3	14-2	3-9
23	4 05-8	4 06-4	3 54-6	2-3	0-6	8-3	2-3	14-3	3-9
24	4 06-0	4 06-7	3 54-8	2-4	0-7	8-4	2-3	14-4	4-0
25	4 06-3	4 06-9	3 55-0	2-5	0-7	8-5	2-3	14-5	4-0
26	4 06-5	4 07-2	3 55-3	2-6	0-7	8-6	2-4	14-6	4-0
27	4 06-8	4 07-4	3 55-5	2-7	0-7	8-7	2-4	14-7	4-0
28	4 07-0	4 07-7	3 55-7	2-8	0-8	8-8	2-4	14-8	4-1
29	4 07-3	4 07-9	3 56-0	2-9	0-8	8-9	2-4	14-9	4-1
30	4 07-5	4 08-2	3 56-2	3-0	0-8	9-0	2-5	15-0	4-1
31	4 07-8	4 08-4	3 56-5	3-1	0-9	9-1	2-5	15-1	4-2
32	4 08-0	4 08-7	3 56-7	3-2	0-9	9-2	2-5	15-2	4-2
33	4 08-3	4 08-9	3 56-9	3-3	0-9	9-3	2-6	15-3	4-2
34	4 08-5	4 09-2	3 57-2	3-4	0-9	9-4	2-6	15-4	4-2
35	4 08-8	4 09-4	3 57-4	3-5	1-0	9-5	2-6	15-5	4-3
36	4 09-0	4 09-7	3 57-7	3-6	1-0	9-6	2-6	15-6	4-3
37	4 09-3	4 09-9	3 57-9	3-7	1-0	9-7	2-7	15-7	4-3
38	4 09-5	4 10-2	3 58-1	3-8	1-0	9-8	2-7	15-8	4-3
39	4 09-8	4 10-4	3 58-4	3-9	1-1	9-9	2-7	15-9	4-4
40	4 10-0	4 10-7	3 58-6	4-0	1-1	10-0	2-8	16-0	4-4
41	4 10-3	4 10-9	3 58-8	4-1	1-1	10-1	2-8	16-1	4-4
42	4 10-5	4 11-2	3 59-1	4-2	1-2	10-2	2-8	16-2	4-5
43	4 10-8	4 11-4	3 59-3	4-3	1-2	10-3	2-8	16-3	4-5
44	4 11-0	4 11-7	3 59-6	4-4	1-2	10-4	2-9	16-4	4-5
45	4 11-3	4 11-9	3 59-8	4-5	1-2	10-5	2-9	16-5	4-5
46	4 11-5	4 12-2	4 00-0	4-6	1-3	10-6	2-9	16-6	4-6
47	4 11-8	4 12-4	4 00-3	4-7	1-3	10-7	2-9	16-7	4-6
48	4 12-0	4 12-7	4 00-5	4-8	1-3	10-8	3-0	16-8	4-6
49	4 12-3	4 12-9	4 00-8	4-9	1-3	10-9	3-0	16-9	4-6
50	4 12-5	4 13-2	4 01-0	5-0	1-4	11-0	3-0	17-0	4-7
51	4 12-8	4 13-4	4 01-2	5-1	1-4	11-1	3-1	17-1	4-7
52	4 13-0	4 13-7	4 01-5	5-2	1-4	11-2	3-1	17-2	4-7
53	4 13-3	4 13-9	4 01-7	5-3	1-5	11-3	3-1	17-3	4-8
54	4 13-5	4 14-2	4 02-0	5-4	1-5	11-4	3-1	17-4	4-8
55	4 13-8	4 14-4	4 02-2	5-5	1-5	11-5	3-2	17-5	4-8
56	4 14-0	4 14-7	4 02-4	5-6	1-5	11-6	3-2	17-6	4-8
57	4 14-3	4 14-9	4 02-7	5-7	1-6	11-7	3-2	17-7	4-9
58	4 14-5	4 15-2	4 02-9	5-8	1-6	11-8	3-2	17-8	4-9
59	4 14-8	4 15-4	4 03-1	5-9	1-6	11-9	3-3	17-9	4-9
60	4 15-0	4 15-7	4 03-4	6-0	1-7	12-0	3-3	18-0	5-0

x

17 ^m	SUN PLANETS	ARIES	MOON	ν or d	Corr ⁿ	ν or d	Corr ⁿ	ν or d	Corr ⁿ
s	° /	° /	° /	/	/	/	/	/	/
00	4 15-0	4 15-7	4 03-4	0-0	0-0	6-0	1-8	12-0	3-5
01	4 15-3	4 15-9	4 03-6	0-1	0-0	6-1	1-8	12-1	3-5
02	4 15-5	4 16-2	4 03-9	0-2	0-1	6-2	1-8	12-2	3-6
03	4 15-8	4 16-5	4 04-1	0-3	0-1	6-3	1-8	12-3	3-6
04	4 16-0	4 16-7	4 04-3	0-4	0-1	6-4	1-9	12-4	3-6
05	4 16-3	4 17-0	4 04-6	0-5	0-1	6-5	1-9	12-5	3-6
06	4 16-5	4 17-2	4 04-8	0-6	0-2	6-6	1-9	12-6	3-7
07	4 16-8	4 17-5	4 05-1	0-7	0-2	6-7	2-0	12-7	3-7
08	4 17-0	4 17-7	4 05-3	0-8	0-2	6-8	2-0	12-8	3-7
09	4 17-3	4 18-0	4 05-5	0-9	0-3	6-9	2-0	12-9	3-8
10	4 17-5	4 18-2	4 05-8	1-0	0-3	7-0	2-0	13-0	3-8
11	4 17-8	4 18-5	4 06-0	1-1	0-3	7-1	2-1	13-1	3-8
12	4 18-0	4 18-7	4 06-2	1-2	0-4	7-2	2-1	13-2	3-9
13	4 18-3	4 19-0	4 06-5	1-3	0-4	7-3	2-1	13-3	3-9
14	4 18-5	4 19-2	4 06-7	1-4	0-4	7-4	2-2	13-4	3-9
15	4 18-8	4 19-5	4 07-0	1-5	0-4	7-5	2-2	13-5	3-9
16	4 19-0	4 19-7	4 07-2	1-6	0-5	7-6	2-2	13-6	4-0
17	4 19-3	4 20-0	4 07-4	1-7	0-5	7-7	2-2	13-7	4-0
18	4 19-5	4 20-2	4 07-7	1-8	0-5	7-8	2-3	13-8	4-0
19	4 19-8	4 20-5	4 07-9	1-9	0-6	7-9	2-3	13-9	4-1
20	4 20-0	4 20-7	4 08-2	2-0	0-6	8-0	2-3	14-0	4-1
21	4 20-3	4 21-0	4 08-4	2-1	0-6	8-1	2-4	14-1	4-1
22	4 20-5	4 21-2	4 08-6	2-2	0-6	8-2	2-4	14-2	4-1
23	4 20-8	4 21-5	4 08-9	2-3	0-7	8-3	2-4	14-3	4-2
24	4 21-0	4 21-7	4 09-1	2-4	0-7	8-4	2-5	14-4	4-2
25	4 21-3	4 22-0	4 09-3	2-5	0-7	8-5	2-5	14-5	4-2
26	4 21-5	4 22-2	4 09-6	2-6	0-8	8-6	2-5	14-6	4-3
27	4 21-8	4 22-5	4 09-8	2-7	0-8	8-7	2-5	14-7	4-3
28	4 22-0	4 22-7	4 10-1	2-8	0-8	8-8	2-6	14-8	4-3
29	4 22-3	4 23-0	4 10-3	2-9	0-8	8-9	2-6	14-9	4-3
30	4 22-5	4 23-2	4 10-5	3-0	0-9	9-0	2-6	15-0	4-4
31	4 22-8	4 23-5	4 10-8	3-1	0-9	9-1	2-7	15-1	4-4
32	4 23-0	4 23-7	4 11-0	3-2	0-9	9-2	2-7	15-2	4-4
33	4 23-3	4 24-0	4 11-3	3-3	1-0	9-3	2-7	15-3	4-5
34	4 23-5	4 24-2	4 11-5	3-4	1-0	9-4	2-7	15-4	4-5
35	4 23-8	4 24-5	4 11-7	3-5	1-0	9-5	2-8	15-5	4-5
36	4 24-0	4 24-7	4 12-0	3-6	1-1	9-6	2-8	15-6	4-6
37	4 24-3	4 25-0	4 12-2	3-7	1-1	9-7	2-8	15-7	4-6
38	4 24-5	4 25-2	4 12-5	3-8	1-1	9-8	2-9	15-8	4-6
39	4 24-8	4 25-5	4 12-7	3-9	1-1	9-9	2-9	15-9	4-6
40	4 25-0	4 25-7	4 12-9	4-0	1-2	10-0	2-9	16-0	4-7
41	4 25-3	4 26-0	4 13-2	4-1	1-2	10-1	2-9	16-1	4-7
42	4 25-5	4 26-2	4 13-4	4-2	1-2	10-2	3-0	16-2	4-7
43	4 25-8	4 26-5	4 13-6	4-3	1-3	10-3	3-0	16-3	4-8
44	4 26-0	4 26-7	4 13-9	4-4	1-3	10-4	3-0	16-4	4-8
45	4 26-3	4 27-0	4 14-1	4-5	1-3	10-5	3-1	16-5	4-8
46	4 26-5	4 27-2	4 14-4	4-6	1-3	10-6	3-1	16-6	4-8
47	4 26-8	4 27-5	4 14-6	4-7	1-4	10-7	3-1	16-7	4-9
48	4 27-0	4 27-7	4 14-8	4-8	1-4	10-8	3-2	16-8	4-9
49	4 27-3	4 28-0	4 15-1	4-9	1-4	10-9	3-2	16-9	4-9
50	4 27-5	4 28-2	4 15-3	5-0	1-5	11-0	3-2	17-0	5-0
51	4 27-8	4 28-5	4 15-6	5-1	1-5	11-1	3-2	17-1	5-0
52	4 28-0	4 28-7	4 15-8	5-2	1-5	11-2	3-3	17-2	5-0
53	4 28-3	4 29-0	4 16-0	5-3	1-5	11-3	3-3	17-3	5-0
54	4 28-5	4 29-2	4 16-3	5-4	1-6	11-4	3-3	17-4	5-1
55	4 28-8	4 29-5	4 16-5	5-5	1-6	11-5	3-4	17-5	5-1
56	4 29-0	4 29-7	4 16-7	5-6	1-6	11-6	3-4	17-6	5-1
57	4 29-3	4 30-0	4 17-0	5-7	1-7	11-7	3-4	17-7	5-2
58	4 29-5	4 30-2	4 17-2	5-8	1-7	11-8	3-4	17-8	5-2
59	4 29-8	4 30-5	4 17-5	5-9	1-7	11-9	3-5	17-9	5-2
60	4 30-0	4 30-7	4 17-7	6-0	1-8	12-0	3-5	18-0	5-3

^m 18	SUN PLANETS	ARIES	MOON	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ
s	o	i	o	i	i	i
00	4 30.0	4 30.7	4 17.7	0.0 0.0	6.0 1.9	12.0 3.7
01	4 30.3	4 31.0	4 17.9	0.1 0.0	6.1 1.9	12.1 3.7
02	4 30.5	4 31.2	4 18.2	0.2 0.1	6.2 1.9	12.2 3.8
03	4 30.8	4 31.5	4 18.4	0.3 0.1	6.3 1.9	12.3 3.8
04	4 31.0	4 31.7	4 18.7	0.4 0.1	6.4 2.0	12.4 3.8
05	4 31.3	4 32.0	4 18.9	0.5 0.2	6.5 2.0	12.5 3.9
06	4 31.5	4 32.2	4 19.1	0.6 0.2	6.6 2.0	12.6 3.9
07	4 31.8	4 32.5	4 19.4	0.7 0.2	6.7 2.1	12.7 3.9
08	4 32.0	4 32.7	4 19.6	0.8 0.2	6.8 2.1	12.8 3.9
09	4 32.3	4 33.0	4 19.8	0.9 0.3	6.9 2.1	12.9 4.0
10	4 32.5	4 33.2	4 20.1	1.0 0.3	7.0 2.2	13.0 4.0
11	4 32.8	4 33.5	4 20.3	1.1 0.3	7.1 2.2	13.1 4.1
12	4 33.0	4 33.7	4 20.6	1.2 0.4	7.2 2.2	13.2 4.1
13	4 33.3	4 34.0	4 20.8	1.3 0.4	7.3 2.3	13.3 4.1
14	4 33.5	4 34.2	4 21.0	1.4 0.4	7.4 2.3	13.4 4.1
15	4 33.8	4 34.5	4 21.3	1.5 0.5	7.5 2.3	13.5 4.2
16	4 34.0	4 34.8	4 21.5	1.6 0.5	7.6 2.3	13.6 4.2
17	4 34.3	4 35.0	4 21.8	1.7 0.5	7.7 2.4	13.7 4.2
18	4 34.5	4 35.3	4 22.0	1.8 0.6	7.8 2.4	13.8 4.3
19	4 34.8	4 35.5	4 22.2	1.9 0.6	7.9 2.4	13.9 4.3
20	4 35.0	4 35.8	4 22.5	2.0 0.6	8.0 2.5	14.0 4.3
21	4 35.3	4 36.0	4 22.7	2.1 0.6	8.1 2.5	14.1 4.4
22	4 35.5	4 36.3	4 22.9	2.2 0.7	8.2 2.5	14.2 4.4
23	4 35.8	4 36.5	4 23.2	2.3 0.7	8.3 2.6	14.3 4.4
24	4 36.0	4 36.8	4 23.4	2.4 0.7	8.4 2.6	14.4 4.4
25	4 36.3	4 37.0	4 23.7	2.5 0.8	8.5 2.6	14.5 4.5
26	4 36.5	4 37.3	4 23.9	2.6 0.8	8.6 2.7	14.6 4.5
27	4 36.8	4 37.5	4 24.1	2.7 0.8	8.7 2.7	14.7 4.5
28	4 37.0	4 37.8	4 24.4	2.8 0.9	8.8 2.7	14.8 4.6
29	4 37.3	4 38.0	4 24.6	2.9 0.9	8.9 2.7	14.9 4.6
30	4 37.5	4 38.3	4 24.9	3.0 0.9	9.0 2.8	15.0 4.6
31	4 37.8	4 38.5	4 25.1	3.1 1.0	9.1 2.8	15.1 4.7
32	4 38.0	4 38.8	4 25.3	3.2 1.0	9.2 2.8	15.2 4.7
33	4 38.3	4 39.0	4 25.6	3.3 1.0	9.3 2.9	15.3 4.7
34	4 38.5	4 39.3	4 25.8	3.4 1.0	9.4 2.9	15.4 4.7
35	4 38.8	4 39.5	4 26.1	3.5 1.1	9.5 2.9	15.5 4.8
36	4 39.0	4 39.8	4 26.3	3.6 1.1	9.6 3.0	15.6 4.8
37	4 39.3	4 40.0	4 26.5	3.7 1.1	9.7 3.0	15.7 4.8
38	4 39.5	4 40.3	4 26.8	3.8 1.2	9.8 3.0	15.8 4.9
39	4 39.8	4 40.5	4 27.0	3.9 1.2	9.9 3.1	15.9 4.9
40	4 40.0	4 40.8	4 27.2	4.0 1.2	10.0 3.1	16.0 4.9
41	4 40.3	4 41.0	4 27.5	4.1 1.3	10.1 3.1	16.1 5.0
42	4 40.5	4 41.3	4 27.7	4.2 1.3	10.2 3.1	16.2 5.0
43	4 40.8	4 41.5	4 28.0	4.3 1.3	10.3 3.2	16.3 5.0
44	4 41.0	4 41.8	4 28.2	4.4 1.4	10.4 3.2	16.4 5.1
45	4 41.3	4 42.0	4 28.4	4.5 1.4	10.5 3.2	16.5 5.1
46	4 41.5	4 42.3	4 28.7	4.6 1.4	10.6 3.3	16.6 5.1
47	4 41.8	4 42.5	4 28.9	4.7 1.4	10.7 3.3	16.7 5.1
48	4 42.0	4 42.8	4 29.2	4.8 1.5	10.8 3.3	16.8 5.2
49	4 42.3	4 43.0	4 29.4	4.9 1.5	10.9 3.4	16.9 5.2
50	4 42.5	4 43.3	4 29.6	5.0 1.5	11.0 3.4	17.0 5.2
51	4 42.8	4 43.5	4 29.9	5.1 1.6	11.1 3.4	17.1 5.3
52	4 43.0	4 43.8	4 30.1	5.2 1.6	11.2 3.5	17.2 5.3
53	4 43.3	4 44.0	4 30.3	5.3 1.6	11.3 3.5	17.3 5.3
54	4 43.5	4 44.3	4 30.6	5.4 1.7	11.4 3.5	17.4 5.4
55	4 43.8	4 44.5	4 30.8	5.5 1.7	11.5 3.5	17.5 5.4
56	4 44.0	4 44.8	4 31.1	5.6 1.7	11.6 3.6	17.6 5.4
57	4 44.3	4 45.0	4 31.3	5.7 1.8	11.7 3.6	17.7 5.5
58	4 44.5	4 45.3	4 31.5	5.8 1.8	11.8 3.6	17.8 5.5
59	4 44.8	4 45.5	4 31.8	5.9 1.8	11.9 3.7	17.9 5.5
60	4 45.0	4 45.8	4 32.0	6.0 1.9	12.0 3.7	18.0 5.6

^m 19	SUN PLANETS	ARIES	MOON	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ
s	o	i	o	i	i	i
00	4 45.0	4 45.8	4 32.0	0.0 0.0	6.0 2.0	12.0 3.9
01	4 45.3	4 46.0	4 32.3	0.1 0.0	6.1 2.0	12.1 3.9
02	4 45.5	4 46.3	4 32.5	0.2 0.1	6.2 2.0	12.2 4.0
03	4 45.8	4 46.5	4 32.7	0.3 0.1	6.3 2.0	12.3 4.0
04	4 46.0	4 46.8	4 33.0	0.4 0.1	6.4 2.1	12.4 4.0
05	4 46.3	4 47.0	4 33.2	0.5 0.2	6.5 2.1	12.5 4.1
06	4 46.5	4 47.3	4 33.4	0.6 0.2	6.6 2.1	12.6 4.1
07	4 46.8	4 47.5	4 33.7	0.7 0.2	6.7 2.2	12.7 4.1
08	4 47.0	4 47.8	4 33.9	0.8 0.3	6.8 2.2	12.8 4.2
09	4 47.3	4 48.0	4 34.2	0.9 0.3	6.9 2.2	12.9 4.2
10	4 47.5	4 48.3	4 34.4	1.0 0.3	7.0 2.3	13.0 4.2
11	4 47.8	4 48.5	4 34.6	1.1 0.4	7.1 2.3	13.1 4.3
12	4 48.0	4 48.8	4 34.9	1.2 0.4	7.2 2.3	13.2 4.3
13	4 48.3	4 49.0	4 35.1	1.3 0.4	7.3 2.4	13.3 4.3
14	4 48.5	4 49.3	4 35.4	1.4 0.5	7.4 2.4	13.4 4.4
15	4 48.8	4 49.5	4 35.6	1.5 0.5	7.5 2.4	13.5 4.4
16	4 49.0	4 49.8	4 35.8	1.6 0.5	7.6 2.5	13.6 4.4
17	4 49.3	4 50.0	4 36.1	1.7 0.6	7.7 2.5	13.7 4.5
18	4 49.5	4 50.3	4 36.3	1.8 0.6	7.8 2.5	13.8 4.5
19	4 49.8	4 50.5	4 36.6	1.9 0.6	7.9 2.6	13.9 4.5
20	4 50.0	4 50.8	4 36.8	2.0 0.7	8.0 2.6	14.0 4.6
21	4 50.3	4 51.0	4 37.0	2.1 0.7	8.1 2.6	14.1 4.6
22	4 50.5	4 51.3	4 37.3	2.2 0.7	8.2 2.7	14.2 4.6
23	4 50.8	4 51.5	4 37.5	2.3 0.7	8.3 2.7	14.3 4.6
24	4 51.0	4 51.8	4 37.7	2.4 0.8	8.4 2.7	14.4 4.7
25	4 51.3	4 52.0	4 38.0	2.5 0.8	8.5 2.8	14.5 4.7
26	4 51.5	4 52.3	4 38.2	2.6 0.8	8.6 2.8	14.6 4.7
27	4 51.8	4 52.5	4 38.5	2.7 0.9	8.7 2.8	14.7 4.8
28	4 52.0	4 52.8	4 38.7	2.8 0.9	8.8 2.9	14.8 4.8
29	4 52.3	4 53.1	4 38.9	2.9 0.9	8.9 2.9	14.9 4.8
30	4 52.5	4 53.3	4 39.2	3.0 1.0	9.0 2.9	15.0 4.9
31	4 52.8	4 53.6	4 39.4	3.1 1.0	9.1 3.0	15.1 4.9
32	4 53.0	4 53.8	4 39.7	3.2 1.0	9.2 3.0	15.2 4.9
33	4 53.3	4 54.1	4 39.9	3.3 1.1	9.3 3.0	15.3 5.0
34	4 53.5	4 54.3	4 40.1	3.4 1.1	9.4 3.1	15.4 5.0
35	4 53.8	4 54.6	4 40.4	3.5 1.1	9.5 3.1	15.5 5.0
36	4 54.0	4 54.8	4 40.6	3.6 1.2	9.6 3.1	15.6 5.1
37	4 54.3	4 55.1	4 40.8	3.7 1.2	9.7 3.2	15.7 5.1
38	4 54.5	4 55.3	4 41.1	3.8 1.2	9.8 3.2	15.8 5.1
39	4 54.8	4 55.6	4 41.3	3.9 1.3	9.9 3.2	15.9 5.2
40	4 55.0	4 55.8	4 41.6	4.0 1.3	10.0 3.3	16.0 5.2
41	4 55.3	4 56.1	4 41.8	4.1 1.3	10.1 3.3	16.1 5.2
42	4 55.5	4 56.3	4 42.0	4.2 1.4	10.2 3.3	16.2 5.3
43	4 55.8	4 56.6	4 42.3	4.3 1.4	10.3 3.3	16.3 5.3
44	4 56.0	4 56.8	4 42.5	4.4 1.4	10.4 3.4	16.4 5.3
45	4 56.3	4 57.1	4 42.8	4.5 1.5	10.5 3.4	16.5 5.4
46	4 56.5	4 57.3	4 43.0	4.6 1.5	10.6 3.4	16.6 5.4
47	4 56.8	4 57.6	4 43.2	4.7 1.5	10.7 3.5	16.7 5.4
48	4 57.0	4 57.8	4 43.5	4.8 1.6	10.8 3.5	16.8 5.5
49	4 57.3	4 58.1	4 43.7	4.9 1.6	10.9 3.5	16.9 5.5
50	4 57.5	4 58.3	4 43.9	5.0 1.6	11.0 3.6	17.0 5.5
51	4 57.8	4 58.6	4 44.2	5.1 1.7	11.1 3.6	17.1 5.6
52	4 58.0	4 58.8	4 44.4	5.2 1.7	11.2 3.6	17.2 5.6
53	4 58.3	4 59.1	4 44.7	5.3 1.7	11.3 3.7	17.3 5.6
54	4 58.5	4 59.3	4 44.9	5.4 1.8	11.4 3.7	17.4 5.7
55	4 58.8	4 59.6	4 45.1	5.5 1.8	11.5 3.7	17.5 5.7
56	4 59.0	4 59.8	4 45.4	5.6 1.8	11.6 3.8	17.6 5.7
57	4 59.3	5 00.1	4 45.6	5.7 1.9	11.7 3.8	17.7 5.8
58	4 59.5	5 00.3	4 45.9	5.8 1.9	11.8 3.8	17.8 5.8
59	4 59.8	5 00.6	4 46.1	5.9 1.9	11.9 3.9	17.9 5.8
60	5 00.0	5 00.8	4 46.3	6.0 2.0	12.0 3.9	18.0 5.9

20 ^m	SUN PLANETS	ARIES	MOON	ψ or Corr ⁿ d	ψ or Corr ⁿ d	ψ or Corr ⁿ d
s	o	o	o	/	/	/
00	5 00-0	5 00-8	4 46-3	0-0	0-0	6-0
01	5 00-3	5 01-1	4 46-6	0-1	0-0	6-1
02	5 00-5	5 01-3	4 46-8	0-2	0-1	6-2
03	5 00-8	5 01-6	4 47-0	0-3	0-1	6-3
04	5 01-0	5 01-8	4 47-3	0-4	0-1	6-4
05	5 01-3	5 02-1	4 47-5	0-5	0-2	6-5
06	5 01-5	5 02-3	4 47-8	0-6	0-2	6-6
07	5 01-8	5 02-6	4 48-0	0-7	0-2	6-7
08	5 02-0	5 02-8	4 48-2	0-8	0-3	6-8
09	5 02-3	5 03-1	4 48-5	0-9	0-3	6-9
10	5 02-5	5 03-3	4 48-7	1-0	0-3	7-0
11	5 02-8	5 03-6	4 49-0	1-1	0-4	7-1
12	5 03-0	5 03-8	4 49-2	1-2	0-4	7-2
13	5 03-3	5 04-1	4 49-4	1-3	0-4	7-3
14	5 03-5	5 04-3	4 49-7	1-4	0-5	7-4
15	5 03-8	5 04-6	4 49-9	1-5	0-5	7-5
16	5 04-0	5 04-8	4 50-2	1-6	0-5	7-6
17	5 04-3	5 05-1	4 50-4	1-7	0-6	7-7
18	5 04-5	5 05-3	4 50-6	1-8	0-6	7-8
19	5 04-8	5 05-6	4 50-9	1-9	0-6	7-9
20	5 05-0	5 05-8	4 51-1	2-0	0-7	8-0
21	5 05-3	5 06-1	4 51-3	2-1	0-7	8-1
22	5 05-5	5 06-3	4 51-6	2-2	0-8	8-2
23	5 05-8	5 06-6	4 51-8	2-3	0-8	8-3
24	5 06-0	5 06-8	4 52-1	2-4	0-8	8-4
25	5 06-3	5 07-1	4 52-3	2-5	0-9	8-5
26	5 06-5	5 07-3	4 52-5	2-6	0-9	8-6
27	5 06-8	5 07-6	4 52-8	2-7	0-9	8-7
28	5 07-0	5 07-8	4 53-0	2-8	1-0	8-8
29	5 07-3	5 08-1	4 53-3	2-9	1-0	8-9
30	5 07-5	5 08-3	4 53-5	3-0	1-0	9-0
31	5 07-8	5 08-6	4 53-7	3-1	1-1	9-1
32	5 08-0	5 08-8	4 54-0	3-2	1-1	9-2
33	5 08-3	5 09-1	4 54-2	3-3	1-1	9-3
34	5 08-5	5 09-3	4 54-4	3-4	1-2	9-4
35	5 08-8	5 09-6	4 54-7	3-5	1-2	9-5
36	5 09-0	5 09-8	4 54-9	3-6	1-2	9-6
37	5 09-3	5 10-1	4 55-2	3-7	1-3	9-7
38	5 09-5	5 10-3	4 55-4	3-8	1-3	9-8
39	5 09-8	5 10-6	4 55-6	3-9	1-3	9-9
40	5 10-0	5 10-8	4 55-9	4-0	1-4	10-0
41	5 10-3	5 11-1	4 56-1	4-1	1-4	10-1
42	5 10-5	5 11-4	4 56-4	4-2	1-4	10-2
43	5 10-8	5 11-6	4 56-6	4-3	1-5	10-3
44	5 11-0	5 11-9	4 56-8	4-4	1-5	10-4
45	5 11-3	5 12-1	4 57-1	4-5	1-5	10-5
46	5 11-5	5 12-4	4 57-3	4-6	1-6	10-6
47	5 11-8	5 12-6	4 57-5	4-7	1-6	10-7
48	5 12-0	5 12-9	4 57-8	4-8	1-6	10-8
49	5 12-3	5 13-1	4 58-0	4-9	1-7	10-9
50	5 12-5	5 13-4	4 58-3	5-0	1-7	11-0
51	5 12-8	5 13-6	4 58-5	5-1	1-7	11-1
52	5 13-0	5 13-9	4 58-7	5-2	1-8	11-2
53	5 13-3	5 14-1	4 59-0	5-3	1-8	11-3
54	5 13-5	5 14-4	4 59-2	5-4	1-8	11-4
55	5 13-8	5 14-6	4 59-5	5-5	1-9	11-5
56	5 14-0	5 14-9	4 59-7	5-6	1-9	11-6
57	5 14-3	5 15-1	4 59-9	5-7	1-9	11-7
58	5 14-5	5 15-4	5 00-2	5-8	2-0	11-8
59	5 14-8	5 15-6	5 00-4	5-9	2-0	11-9
60	5 15-0	5 15-9	5 00-7	6-0	2-1	12-0

21 ^m	SUN PLANETS	ARIES	MOON	ψ or Corr ⁿ d	ψ or Corr ⁿ d	ψ or Corr ⁿ d
s	o	o	o	/	/	/
00	5 15-0	5 15-9	5 00-7	0-0	0-0	6-0
01	5 15-3	5 16-1	5 00-9	0-1	0-0	6-1
02	5 15-5	5 16-4	5 01-1	0-2	0-1	6-2
03	5 15-8	5 16-6	5 01-4	0-3	0-1	6-3
04	5 16-0	5 16-9	5 01-6	0-4	0-1	6-4
05	5 16-3	5 17-1	5 01-8	0-5	0-2	6-5
06	5 16-5	5 17-4	5 02-1	0-6	0-2	6-6
07	5 16-8	5 17-6	5 02-3	0-7	0-3	6-7
08	5 17-0	5 17-9	5 02-6	0-8	0-3	6-8
09	5 17-3	5 18-1	5 02-8	0-9	0-3	6-9
10	5 17-5	5 18-4	5 03-0	1-0	0-4	7-0
11	5 17-8	5 18-6	5 03-3	1-1	0-4	7-1
12	5 18-0	5 18-9	5 03-5	1-2	0-4	7-2
13	5 18-3	5 19-1	5 03-8	1-3	0-5	7-3
14	5 18-5	5 19-4	5 04-0	1-4	0-5	7-4
15	5 18-8	5 19-6	5 04-2	1-5	0-5	7-5
16	5 19-0	5 19-9	5 04-5	1-6	0-6	7-6
17	5 19-3	5 20-1	5 04-7	1-7	0-6	7-7
18	5 19-5	5 20-4	5 04-9	1-8	0-6	7-8
19	5 19-8	5 20-6	5 05-2	1-9	0-7	7-9
20	5 20-0	5 20-9	5 05-4	2-0	0-7	8-0
21	5 20-3	5 21-1	5 05-7	2-1	0-8	8-1
22	5 20-5	5 21-4	5 05-9	2-2	0-8	8-2
23	5 20-8	5 21-6	5 06-1	2-3	0-8	8-3
24	5 21-0	5 21-9	5 06-4	2-4	0-9	8-4
25	5 21-3	5 22-1	5 06-6	2-5	0-9	8-5
26	5 21-5	5 22-4	5 06-9	2-6	0-9	8-6
27	5 21-8	5 22-6	5 07-1	2-7	1-0	8-7
28	5 22-0	5 22-9	5 07-3	2-8	1-0	8-8
29	5 22-3	5 23-1	5 07-6	2-9	1-0	8-9
30	5 22-5	5 23-4	5 07-8	3-0	1-1	9-0
31	5 22-8	5 23-6	5 08-0	3-1	1-1	9-1
32	5 23-0	5 23-9	5 08-3	3-2	1-1	9-2
33	5 23-3	5 24-1	5 08-5	3-3	1-2	9-3
34	5 23-5	5 24-4	5 08-8	3-4	1-2	9-4
35	5 23-8	5 24-6	5 09-0	3-5	1-3	9-5
36	5 24-0	5 24-9	5 09-2	3-6	1-3	9-6
37	5 24-3	5 25-1	5 09-5	3-7	1-3	9-7
38	5 24-5	5 25-4	5 09-7	3-8	1-4	9-8
39	5 24-8	5 25-6	5 10-0	3-9	1-4	9-9
40	5 25-0	5 25-9	5 10-2	4-0	1-4	10-0
41	5 25-3	5 26-1	5 10-4	4-1	1-5	10-1
42	5 25-5	5 26-4	5 10-7	4-2	1-5	10-2
43	5 25-8	5 26-6	5 10-9	4-3	1-5	10-3
44	5 26-0	5 26-9	5 11-1	4-4	1-6	10-4
45	5 26-3	5 27-1	5 11-4	4-5	1-6	10-5
46	5 26-5	5 27-4	5 11-6	4-6	1-6	10-6
47	5 26-8	5 27-6	5 11-9	4-7	1-7	10-7
48	5 27-0	5 27-9	5 12-1	4-8	1-7	10-8
49	5 27-3	5 28-1	5 12-3	4-9	1-8	10-9
50	5 27-5	5 28-4	5 12-6	5-0	1-8	11-0
51	5 27-8	5 28-6	5 12-8	5-1	1-8	11-1
52	5 28-0	5 28-9	5 13-1	5-2	1-9	11-2
53	5 28-3	5 29-1	5 13-3	5-3	1-9	11-3
54	5 28-5	5 29-4	5 13-5	5-4	1-9	11-4
55	5 28-8	5 29-7	5 13-8	5-5	2-0	11-5
56	5 29-0	5 29-9	5 14-0	5-6	2-0	11-6
57	5 29-3	5 30-2	5 14-3	5-7	2-0	11-7
58	5 29-5	5 30-4	5 14-5	5-8	2-1	11-8
59	5 29-8	5 30-7	5 14-7	5-9	2-1	11-9
60	5 30-0	5 30-9	5 15-0	6-0	2-2	12-0

22 ^m	SUN PLANETS	ARIES	MOON	v or d	Corr ⁿ	v or d	Corr ⁿ	v or d	Corr ⁿ
s	o	/	o	/	/	/	/	/	/
00	5 30.0	5 30.9	5 15.0	0.0	0.0	6.0	2.3	12.0	4.5
01	5 30.3	5 31.2	5 15.2	0.1	0.0	6.1	2.3	12.1	4.5
02	5 30.5	5 31.4	5 15.4	0.2	0.1	6.2	2.3	12.2	4.6
03	5 30.8	5 31.7	5 15.7	0.3	0.1	6.3	2.4	12.3	4.6
04	5 31.0	5 31.9	5 15.9	0.4	0.2	6.4	2.4	12.4	4.7
05	5 31.3	5 32.2	5 16.2	0.5	0.2	6.5	2.4	12.5	4.7
06	5 31.5	5 32.4	5 16.4	0.6	0.2	6.6	2.5	12.6	4.7
07	5 31.8	5 32.7	5 16.6	0.7	0.3	6.7	2.5	12.7	4.8
08	5 32.0	5 32.9	5 16.9	0.8	0.3	6.8	2.6	12.8	4.8
09	5 32.3	5 33.2	5 17.1	0.9	0.3	6.9	2.6	12.9	4.8
10	5 32.5	5 33.4	5 17.4	1.0	0.4	7.0	2.6	13.0	4.9
11	5 32.8	5 33.7	5 17.6	1.1	0.4	7.1	2.7	13.1	4.9
12	5 33.0	5 33.9	5 17.8	1.2	0.5	7.2	2.7	13.2	5.0
13	5 33.3	5 34.2	5 18.1	1.3	0.5	7.3	2.7	13.3	5.0
14	5 33.5	5 34.4	5 18.3	1.4	0.5	7.4	2.8	13.4	5.0
15	5 33.8	5 34.7	5 18.5	1.5	0.6	7.5	2.8	13.5	5.1
16	5 34.0	5 34.9	5 18.8	1.6	0.6	7.6	2.9	13.6	5.1
17	5 34.3	5 35.2	5 19.0	1.7	0.6	7.7	2.9	13.7	5.1
18	5 34.5	5 35.4	5 19.3	1.8	0.7	7.8	2.9	13.8	5.2
19	5 34.8	5 35.7	5 19.5	1.9	0.7	7.9	3.0	13.9	5.2
20	5 35.0	5 35.9	5 19.7	2.0	0.8	8.0	3.0	14.0	5.3
21	5 35.3	5 36.2	5 20.0	2.1	0.8	8.1	3.0	14.1	5.3
22	5 35.5	5 36.4	5 20.2	2.2	0.8	8.2	3.1	14.2	5.3
23	5 35.8	5 36.7	5 20.5	2.3	0.9	8.3	3.1	14.3	5.4
24	5 36.0	5 36.9	5 20.7	2.4	0.9	8.4	3.2	14.4	5.4
25	5 36.3	5 37.2	5 20.9	2.5	0.9	8.5	3.2	14.5	5.4
26	5 36.5	5 37.4	5 21.2	2.6	1.0	8.6	3.2	14.6	5.5
27	5 36.8	5 37.7	5 21.4	2.7	1.0	8.7	3.3	14.7	5.5
28	5 37.0	5 37.9	5 21.6	2.8	1.1	8.8	3.3	14.8	5.6
29	5 37.3	5 38.2	5 21.9	2.9	1.1	8.9	3.3	14.9	5.6
30	5 37.5	5 38.4	5 22.1	3.0	1.1	9.0	3.4	15.0	5.6
31	5 37.8	5 38.7	5 22.4	3.1	1.2	9.1	3.4	15.1	5.7
32	5 38.0	5 38.9	5 22.6	3.2	1.2	9.2	3.5	15.2	5.7
33	5 38.3	5 39.2	5 22.8	3.3	1.2	9.3	3.5	15.3	5.7
34	5 38.5	5 39.4	5 23.1	3.4	1.3	9.4	3.5	15.4	5.8
35	5 38.8	5 39.7	5 23.3	3.5	1.3	9.5	3.6	15.5	5.8
36	5 39.0	5 39.9	5 23.6	3.6	1.4	9.6	3.6	15.6	5.9
37	5 39.3	5 40.2	5 23.8	3.7	1.4	9.7	3.6	15.7	5.9
38	5 39.5	5 40.4	5 24.0	3.8	1.4	9.8	3.7	15.8	5.9
39	5 39.8	5 40.7	5 24.3	3.9	1.5	9.9	3.7	15.9	6.0
40	5 40.0	5 40.9	5 24.5	4.0	1.5	10.0	3.8	16.0	6.0
41	5 40.3	5 41.2	5 24.7	4.1	1.5	10.1	3.8	16.1	6.0
42	5 40.5	5 41.4	5 25.0	4.2	1.6	10.2	3.8	16.2	6.1
43	5 40.8	5 41.7	5 25.2	4.3	1.6	10.3	3.9	16.3	6.1
44	5 41.0	5 41.9	5 25.5	4.4	1.7	10.4	3.9	16.4	6.2
45	5 41.3	5 42.2	5 25.7	4.5	1.7	10.5	3.9	16.5	6.2
46	5 41.5	5 42.4	5 25.9	4.6	1.7	10.6	4.0	16.6	6.2
47	5 41.8	5 42.7	5 26.2	4.7	1.8	10.7	4.0	16.7	6.3
48	5 42.0	5 42.9	5 26.4	4.8	1.8	10.8	4.1	16.8	6.3
49	5 42.3	5 43.2	5 26.7	4.9	1.8	10.9	4.1	16.9	6.3
50	5 42.5	5 43.4	5 26.9	5.0	1.9	11.0	4.1	17.0	6.4
51	5 42.8	5 43.7	5 27.1	5.1	1.9	11.1	4.2	17.1	6.4
52	5 43.0	5 43.9	5 27.4	5.2	2.0	11.2	4.2	17.2	6.5
53	5 43.3	5 44.2	5 27.6	5.3	2.0	11.3	4.2	17.3	6.5
54	5 43.5	5 44.4	5 27.9	5.4	2.0	11.4	4.3	17.4	6.5
55	5 43.8	5 44.7	5 28.1	5.5	2.1	11.5	4.3	17.5	6.6
56	5 44.0	5 44.9	5 28.3	5.6	2.1	11.6	4.4	17.6	6.6
57	5 44.3	5 45.2	5 28.6	5.7	2.1	11.7	4.4	17.7	6.6
58	5 44.5	5 45.4	5 28.8	5.8	2.2	11.8	4.4	17.8	6.7
59	5 44.8	5 45.7	5 29.0	5.9	2.2	11.9	4.5	17.9	6.7
60	5 45.0	5 45.9	5 29.3	6.0	2.3	12.0	4.5	18.0	6.8

23 ^m	SUN PLANETS	ARIES	MOON	v or d	Corr ⁿ	v or d	Corr ⁿ	v or d	Corr ⁿ
s	o	/	o	/	/	/	/	/	/
00	5 45.0	5 45.9	5 29.3	0.0	0.0	6.0	2.4	12.0	4.7
01	5 45.3	5 46.2	5 29.5	0.1	0.0	6.1	2.4	12.1	4.7
02	5 45.5	5 46.4	5 29.8	0.2	0.1	6.2	2.4	12.2	4.8
03	5 45.8	5 46.7	5 30.0	0.3	0.1	6.3	2.5	12.3	4.8
04	5 46.0	5 46.9	5 30.2	0.4	0.2	6.4	2.5	12.4	4.9
05	5 46.3	5 47.2	5 30.5	0.5	0.2	6.5	2.5	12.5	4.9
06	5 46.5	5 47.4	5 30.7	0.6	0.2	6.6	2.6	12.6	4.9
07	5 46.8	5 47.7	5 31.0	0.7	0.3	6.7	2.6	12.7	5.0
08	5 47.0	5 48.0	5 31.2	0.8	0.3	6.8	2.7	12.8	5.0
09	5 47.3	5 48.2	5 31.4	0.9	0.4	6.9	2.7	12.9	5.1
10	5 47.5	5 48.5	5 31.7	1.0	0.4	7.0	2.7	13.0	5.1
11	5 47.8	5 48.7	5 31.9	1.1	0.4	7.1	2.8	13.1	5.1
12	5 48.0	5 49.0	5 32.1	1.2	0.5	7.2	2.8	13.2	5.2
13	5 48.3	5 49.2	5 32.4	1.3	0.5	7.3	2.9	13.3	5.2
14	5 48.5	5 49.5	5 32.6	1.4	0.5	7.4	2.9	13.4	5.2
15	5 48.8	5 49.7	5 32.9	1.5	0.6	7.5	2.9	13.5	5.3
16	5 49.0	5 50.0	5 33.1	1.6	0.6	7.6	3.0	13.6	5.3
17	5 49.3	5 50.2	5 33.3	1.7	0.7	7.7	3.0	13.7	5.4
18	5 49.5	5 50.5	5 33.6	1.8	0.7	7.8	3.1	13.8	5.4
19	5 49.8	5 50.7	5 33.8	1.9	0.7	7.9	3.1	13.9	5.4
20	5 50.0	5 51.0	5 34.1	2.0	0.8	8.0	3.1	14.0	5.5
21	5 50.3	5 51.2	5 34.3	2.1	0.8	8.1	3.2	14.1	5.5
22	5 50.5	5 51.5	5 34.5	2.2	0.9	8.2	3.2	14.2	5.6
23	5 50.8	5 51.7	5 34.8	2.3	0.9	8.3	3.3	14.3	5.6
24	5 51.0	5 52.0	5 35.0	2.4	0.9	8.4	3.3	14.4	5.6
25	5 51.3	5 52.2	5 35.2	2.5	1.0	8.5	3.3	14.5	5.7
26	5 51.5	5 52.5	5 35.5	2.6	1.0	8.6	3.4	14.6	5.7
27	5 51.8	5 52.7	5 35.7	2.7	1.1	8.7	3.4	14.7	5.8
28	5 52.0	5 53.0	5 36.0	2.8	1.1	8.8	3.4	14.8	5.8
29	5 52.3	5 53.2	5 36.2	2.9	1.1	8.9	3.5	14.9	5.8
30	5 52.5	5 53.5	5 36.4	3.0	1.2	9.0	3.5	15.0	5.9
31	5 52.8	5 53.7	5 36.7	3.1	1.2	9.1	3.6	15.1	5.9
32	5 53.0	5 54.0	5 36.9	3.2	1.3	9.2	3.6	15.2	6.0
33	5 53.3	5 54.2	5 37.2	3.3	1.3	9.3	3.6	15.3	6.0
34	5 53.5	5 54.5	5 37.4	3.4	1.3	9.4	3.7	15.4	6.0
35	5 53.8	5 54.7	5 37.6	3.5	1.4	9.5	3.7	15.5	6.1
36	5 54.0	5 55.0	5 37.9	3.6	1.4	9.6	3.8	15.6	6.1
37	5 54.3	5 55.2	5 38.1	3.7	1.4	9.7	3.8	15.7	6.1
38	5 54.5	5 55.5	5 38.4	3.8	1.5	9.8	3.8	15.8	6.2
39	5 54.8	5 55.7	5 38.6	3.9	1.5	9.9	3.9	15.9	6.2
40	5 55.0	5 56.0	5 38.8	4.0	1.6	10.0	3.9	16.0	6.3
41	5 55.3	5 56.2	5 39.1	4.1	1.6	10.1	4.0	16.1	6.3
42	5 55.5	5 56.5	5 39.3	4.2	1.6	10.2	4.0	16.2	6.3
43	5 55.8	5 56.7	5 39.5	4.3	1.7	10.3	4.0	16.3	6.4
44	5 56.0	5 57.0	5 39.8	4.4	1.7	10.4	4.1	16.4	6.4
45	5 56.3	5 57.2	5 40.0	4.5	1.8	10.5	4.1	16.5	6.5
46	5 56.5	5 57.5	5 40.3	4.6	1.8	10.6	4.2	16.6	6.5
47	5 56.8	5 57.7	5 40.5	4.7	1.8	10.7	4.2	16.7	6.5
48	5 57.0	5 58.0	5 40.7	4.8	1.9	10.8	4.2	16.8	6.6
49	5 57.3	5 58.2	5 41.0	4.9	1.9	10.9	4.3	16.9	6.6
50	5 57.5	5 58.5	5 41.2	5.0	2.0	11.0	4.3	17.0	6.7
51	5 57.8	5 58.7	5 41.5	5.1	2.0	11.1	4.3	17.1	6.7
52	5 58.0	5 59.0	5 41.7	5.2	2.0	11.2	4.4	17.2	6.7
53	5 58.3	5 59.2	5 41.9	5.3	2.1	11.3	4.4	17.3	6.8
54	5 58.5	5 59.5	5 42.2	5.4	2.1	11.4	4.5	17.4	6.8
55	5 58.8	5 59.7	5 42.4	5.5	2.2	11.5	4.5	17.5	6.9
56	5 59.0	6 00.0	5 42.6	5.6	2.2	11.6	4.5	17.6	6.9
57	5 59.3	6 00.2	5 42.9	5.7	2.2	11.7	4.6	17.7	6.9
58	5 59.5	6 00.5	5 43.1	5.8	2.3	11.8	4.6	17.8	7.0
59	5 59.8	6 00.7	5 43.4	5.9	2.3	11.9	4.7	17.9	7.0
60	6 00.0	6 01.0	5 43.6	6.0	2.4	12.0	4.7	18.0	7.1

24 ^m	SUN PLANETS	ARIES	MOON	v or d	Corr ⁿ	v or d	Corr ⁿ	v or d	Corr ⁿ	25 ^m	SUN PLANETS	ARIES	MOON	v or d	Corr ⁿ	v or d	Corr ⁿ	v or d	Corr ⁿ
s	° ' "	° ' "	° ' "	' "	' "	' "	' "	' "	' "	s	° ' "	° ' "	° ' "	' "	' "	' "	' "	' "	' "
00	6 00.0	6 01.0	5 43.6	0.0	0.0	6.0	2.5	12.0	4.9	00	6 15.0	6 16.0	5 57.9	0.0	0.0	6.0	2.6	12.0	5.1
01	6 00.3	6 01.2	5 43.8	0.1	0.0	6.1	2.5	12.1	4.9	01	6 15.3	6 16.3	5 58.2	0.1	0.0	6.1	2.6	12.1	5.1
02	6 00.5	6 01.5	5 44.1	0.2	0.1	6.2	2.5	12.2	5.0	02	6 15.5	6 16.5	5 58.4	0.2	0.1	6.2	2.6	12.2	5.2
03	6 00.8	6 01.7	5 44.3	0.3	0.1	6.3	2.6	12.3	5.0	03	6 15.8	6 16.8	5 58.6	0.3	0.1	6.3	2.7	12.3	5.2
04	6 01.0	6 02.0	5 44.6	0.4	0.2	6.4	2.6	12.4	5.1	04	6 16.0	6 17.0	5 58.9	0.4	0.2	6.4	2.7	12.4	5.3
05	6 01.3	6 02.2	5 44.8	0.5	0.2	6.5	2.7	12.5	5.1	05	6 16.3	6 17.3	5 59.1	0.5	0.2	6.5	2.8	12.5	5.3
06	6 01.5	6 02.5	5 45.0	0.6	0.2	6.6	2.7	12.6	5.1	06	6 16.5	6 17.5	5 59.3	0.6	0.3	6.6	2.8	12.6	5.4
07	6 01.8	6 02.7	5 45.3	0.7	0.3	6.7	2.7	12.7	5.2	07	6 16.8	6 17.8	5 59.6	0.7	0.3	6.7	2.8	12.7	5.4
08	6 02.0	6 03.0	5 45.5	0.8	0.3	6.8	2.8	12.8	5.2	08	6 17.0	6 18.0	5 59.8	0.8	0.3	6.8	2.9	12.8	5.4
09	6 02.3	6 03.2	5 45.7	0.9	0.4	6.9	2.8	12.9	5.3	09	6 17.3	6 18.3	6 00.1	0.9	0.4	6.9	2.9	12.9	5.5
10	6 02.5	6 03.5	5 46.0	1.0	0.4	7.0	2.9	13.0	5.3	10	6 17.5	6 18.5	6 00.3	1.0	0.4	7.0	3.0	13.0	5.5
11	6 02.8	6 03.7	5 46.2	1.1	0.4	7.1	2.9	13.1	5.3	11	6 17.8	6 18.8	6 00.5	1.1	0.5	7.1	3.0	13.1	5.6
12	6 03.0	6 04.0	5 46.5	1.2	0.5	7.2	2.9	13.2	5.4	12	6 18.0	6 19.0	6 00.8	1.2	0.5	7.2	3.1	13.2	5.6
13	6 03.3	6 04.2	5 46.7	1.3	0.5	7.3	3.0	13.3	5.4	13	6 18.3	6 19.3	6 01.0	1.3	0.6	7.3	3.1	13.3	5.7
14	6 03.5	6 04.5	5 46.9	1.4	0.6	7.4	3.0	13.4	5.5	14	6 18.5	6 19.5	6 01.3	1.4	0.6	7.4	3.1	13.4	5.7
15	6 03.8	6 04.7	5 47.2	1.5	0.6	7.5	3.1	13.5	5.5	15	6 18.8	6 19.8	6 01.5	1.5	0.6	7.5	3.2	13.5	5.7
16	6 04.0	6 05.0	5 47.4	1.6	0.7	7.6	3.1	13.6	5.6	16	6 19.0	6 20.0	6 01.7	1.6	0.7	7.6	3.2	13.6	5.8
17	6 04.3	6 05.2	5 47.7	1.7	0.7	7.7	3.1	13.7	5.6	17	6 19.3	6 20.3	6 02.0	1.7	0.7	7.7	3.3	13.7	5.8
18	6 04.5	6 05.5	5 47.9	1.8	0.7	7.8	3.2	13.8	5.6	18	6 19.5	6 20.5	6 02.2	1.8	0.8	7.8	3.3	13.8	5.9
19	6 04.8	6 05.7	5 48.1	1.9	0.8	7.9	3.2	13.9	5.7	19	6 19.8	6 20.8	6 02.5	1.9	0.8	7.9	3.4	13.9	5.9
20	6 05.0	6 06.0	5 48.4	2.0	0.8	8.0	3.3	14.0	5.7	20	6 20.0	6 21.0	6 02.7	2.0	0.9	8.0	3.4	14.0	6.0
21	6 05.3	6 06.3	5 48.6	2.1	0.9	8.1	3.3	14.1	5.8	21	6 20.3	6 21.3	6 02.9	2.1	0.9	8.1	3.4	14.1	6.0
22	6 05.5	6 06.5	5 48.8	2.2	0.9	8.2	3.3	14.2	5.8	22	6 20.5	6 21.5	6 03.2	2.2	0.9	8.2	3.5	14.2	6.0
23	6 05.8	6 06.8	5 49.1	2.3	0.9	8.3	3.4	14.3	5.8	23	6 20.8	6 21.8	6 03.4	2.3	1.0	8.3	3.5	14.3	6.1
24	6 06.0	6 07.0	5 49.3	2.4	1.0	8.4	3.4	14.4	5.9	24	6 21.0	6 22.0	6 03.6	2.4	1.0	8.4	3.6	14.4	6.1
25	6 06.3	6 07.3	5 49.6	2.5	1.0	8.5	3.5	14.5	5.9	25	6 21.3	6 22.3	6 03.9	2.5	1.1	8.5	3.6	14.5	6.2
26	6 06.5	6 07.5	5 49.8	2.6	1.1	8.6	3.5	14.6	6.0	26	6 21.5	6 22.5	6 04.1	2.6	1.1	8.6	3.7	14.6	6.2
27	6 06.8	6 07.8	5 50.0	2.7	1.1	8.7	3.6	14.7	6.0	27	6 21.8	6 22.8	6 04.4	2.7	1.1	8.7	3.7	14.7	6.2
28	6 07.0	6 08.0	5 50.3	2.8	1.1	8.8	3.6	14.8	6.0	28	6 22.0	6 23.0	6 04.6	2.8	1.2	8.8	3.7	14.8	6.3
29	6 07.3	6 08.3	5 50.5	2.9	1.2	8.9	3.6	14.9	6.1	29	6 22.3	6 23.3	6 04.8	2.9	1.2	8.9	3.8	14.9	6.3
30	6 07.5	6 08.5	5 50.8	3.0	1.2	9.0	3.7	15.0	6.1	30	6 22.5	6 23.5	6 05.1	3.0	1.3	9.0	3.8	15.0	6.4
31	6 07.8	6 08.8	5 51.0	3.1	1.3	9.1	3.7	15.1	6.2	31	6 22.8	6 23.8	6 05.3	3.1	1.3	9.1	3.9	15.1	6.4
32	6 08.0	6 09.0	5 51.2	3.2	1.3	9.2	3.8	15.2	6.2	32	6 23.0	6 24.0	6 05.6	3.2	1.4	9.2	3.9	15.2	6.5
33	6 08.3	6 09.3	5 51.5	3.3	1.3	9.3	3.8	15.3	6.2	33	6 23.3	6 24.3	6 05.8	3.3	1.4	9.3	4.0	15.3	6.5
34	6 08.5	6 09.5	5 51.7	3.4	1.4	9.4	3.8	15.4	6.3	34	6 23.5	6 24.5	6 06.0	3.4	1.4	9.4	4.0	15.4	6.5
35	6 08.8	6 09.8	5 52.0	3.5	1.4	9.5	3.9	15.5	6.3	35	6 23.8	6 24.8	6 06.3	3.5	1.5	9.5	4.0	15.5	6.6
36	6 09.0	6 10.0	5 52.2	3.6	1.5	9.6	3.9	15.6	6.4	36	6 24.0	6 25.1	6 06.5	3.6	1.5	9.6	4.1	15.6	6.6
37	6 09.3	6 10.3	5 52.4	3.7	1.5	9.7	4.0	15.7	6.4	37	6 24.3	6 25.3	6 06.7	3.7	1.6	9.7	4.1	15.7	6.7
38	6 09.5	6 10.5	5 52.7	3.8	1.6	9.8	4.0	15.8	6.5	38	6 24.5	6 25.6	6 07.0	3.8	1.6	9.8	4.2	15.8	6.7
39	6 09.8	6 10.8	5 52.9	3.9	1.6	9.9	4.0	15.9	6.5	39	6 24.8	6 25.8	6 07.2	3.9	1.7	9.9	4.2	15.9	6.8
40	6 10.0	6 11.0	5 53.1	4.0	1.6	10.0	4.1	16.0	6.5	40	6 25.0	6 26.1	6 07.5	4.0	1.7	10.0	4.3	16.0	6.8
41	6 10.3	6 11.3	5 53.4	4.1	1.7	10.1	4.1	16.1	6.6	41	6 25.3	6 26.3	6 07.7	4.1	1.7	10.1	4.3	16.1	6.8
42	6 10.5	6 11.5	5 53.6	4.2	1.7	10.2	4.2	16.2	6.6	42	6 25.5	6 26.6	6 07.9	4.2	1.8	10.2	4.3	16.2	6.9
43	6 10.8	6 11.8	5 53.9	4.3	1.8	10.3	4.2	16.3	6.7	43	6 25.8	6 26.8	6 08.2	4.3	1.8	10.3	4.4	16.3	6.9
44	6 11.0	6 12.0	5 54.1	4.4	1.8	10.4	4.2	16.4	6.7	44	6 26.0	6 27.1	6 08.4	4.4	1.9	10.4	4.4	16.4	7.0
45	6 11.3	6 12.3	5 54.3	4.5	1.8	10.5	4.3	16.5	6.7	45	6 26.3	6 27.3	6 08.7	4.5	1.9	10.5	4.5	16.5	7.0
46	6 11.5	6 12.5	5 54.6	4.6	1.9	10.6	4.3	16.6	6.8	46	6 26.5	6 27.6	6 08.9	4.6	2.0	10.6	4.5	16.6	7.1
47	6 11.8	6 12.8	5 54.8	4.7	1.9	10.7	4.4	16.7	6.8	47	6 26.8	6 27.8	6 09.1	4.7	2.0	10.7	4.5	16.7	7.1
48	6 12.0	6 13.0	5 55.1	4.8	2.0	10.8	4.4	16.8	6.9	48	6 27.0	6 28.1	6 09.4	4.8	2.0	10.8	4.6	16.8	7.1
49	6 12.3	6 13.3	5 55.3	4.9	2.0	10.9	4.5	16.9	6.9	49	6 27.3	6 28.3	6 09.6	4.9	2.1	10.9	4.6	16.9	7.2
50	6 12.5	6 13.5	5 55.5	5.0	2.0	11.0	4.5	17.0	6.9	50	6 27.5	6 28.6	6 09.8	5.0	2.1	11.0	4.7	17.0	7.2
51	6 12.8	6 13.8	5 55.8	5.1	2.1	11.1	4.5	17.1	7.0	51	6 27.8	6 28.8	6 10.1	5.1	2.2	11.1	4.7	17.1	7.3
52	6 13.0	6 14.0	5 56.0	5.2	2.1	11.2	4.6	17.2	7.0	52	6 28.0	6 29.1	6 10.3	5.2	2.2	11.2	4.8	17.2	7.3
53	6 13.3	6 14.3	5 56.2	5.3	2.2	11.3	4.6	17.3	7.1	53	6 28.3	6 29.3	6 10.6	5.3	2.3	11.3	4.8	17.3	7.4
54	6 13.5	6 14.5	5 56.5	5.4	2.2	11.4	4.7	17.4	7.1	54	6 28.5	6 29.6	6 10.8	5.4	2.3	11.4	4.8	17.4	7.4
55	6 13.8	6 14.8	5 56.7	5.5	2.2	11.5	4.7	17.5	7.1	55	6 28.8	6 29.8	6 11.0	5.5	2.3	11.5	4.9	17.5	7.4
56	6 14.0	6 15.0	5 57.0	5.6	2.3	11.6	4.7	17.6	7.2	56	6 29.0	6 30.1	6 11.3	5.6	2.4	11.6	4.9	17.6	7.5
57	6 14.3	6 15.3	5 57.2	5.7	2.3	11.7	4.8	17.7	7.2	57	6 29.3	6 30.3	6 11.5	5.7	2.4	11.7	5.0	17.7	7.5
58	6 14.5	6 15.5	5 57.4	5.8	2.4	11.8	4.8	17.8	7.3	58	6 29.5	6 30.6	6 11.8	5.8	2.5	11.8	5.0	17.8	7.6
59	6 14.8	6 15.8	5 57.7	5.9	2.4	11.9	4.9	17.9	7.3	59	6 29.8	6 30.8	6 12.0	5.9	2.5	11.9	5.1	17.9	7.6
60	6 15.0	6 16.0	5 57.9	6.0	2.5	12.0	4.9	18.0	7.4	60	6 30.0	6 31.1	6 12.2	6.0	2.6	12.0	5.1	18.0	7.7

26 ^m	SUN PLANETS	ARIES	MOON	v or d	Corr ⁿ	v or d	Corr ⁿ	v or d	Corr ⁿ
s	o	o	o	/	/	/	/	/	/
00	6 30-0	6 31-1	6 12-2	0-0	0-0	6-0	2-7	12-0	5-3
01	6 30-3	6 31-3	6 12-5	0-1	0-0	6-1	2-7	12-1	5-3
02	6 30-5	6 31-6	6 12-7	0-2	0-1	6-2	2-7	12-2	5-4
03	6 30-8	6 31-8	6 12-9	0-3	0-1	6-3	2-8	12-3	5-4
04	6 31-0	6 32-1	6 13-2	0-4	0-2	6-4	2-8	12-4	5-5
05	6 31-3	6 32-3	6 13-4	0-5	0-2	6-5	2-9	12-5	5-5
06	6 31-5	6 32-6	6 13-7	0-6	0-3	6-6	2-9	12-6	5-6
07	6 31-8	6 32-8	6 13-9	0-7	0-3	6-7	3-0	12-7	5-6
08	6 32-0	6 33-1	6 14-1	0-8	0-4	6-8	3-0	12-8	5-7
09	6 32-3	6 33-3	6 14-4	0-9	0-4	6-9	3-0	12-9	5-7
10	6 32-5	6 33-6	6 14-6	1-0	0-4	7-0	3-1	13-0	5-7
11	6 32-8	6 33-8	6 14-9	1-1	0-5	7-1	3-1	13-1	5-8
12	6 33-0	6 34-1	6 15-1	1-2	0-5	7-2	3-2	13-2	5-8
13	6 33-3	6 34-3	6 15-3	1-3	0-6	7-3	3-2	13-3	5-9
14	6 33-5	6 34-6	6 15-6	1-4	0-6	7-4	3-3	13-4	5-9
15	6 33-8	6 34-8	6 15-8	1-5	0-7	7-5	3-3	13-5	6-0
16	6 34-0	6 35-1	6 16-1	1-6	0-7	7-6	3-4	13-6	6-0
17	6 34-3	6 35-3	6 16-3	1-7	0-8	7-7	3-4	13-7	6-1
18	6 34-5	6 35-6	6 16-5	1-8	0-8	7-8	3-4	13-8	6-1
19	6 34-8	6 35-8	6 16-8	1-9	0-8	7-9	3-5	13-9	6-1
20	6 35-0	6 36-1	6 17-0	2-0	0-9	8-0	3-5	14-0	6-2
21	6 35-3	6 36-3	6 17-2	2-1	0-9	8-1	3-6	14-1	6-2
22	6 35-5	6 36-6	6 17-5	2-2	1-0	8-2	3-6	14-2	6-3
23	6 35-8	6 36-8	6 17-7	2-3	1-0	8-3	3-7	14-3	6-3
24	6 36-0	6 37-1	6 18-0	2-4	1-1	8-4	3-7	14-4	6-4
25	6 36-3	6 37-3	6 18-2	2-5	1-1	8-5	3-8	14-5	6-4
26	6 36-5	6 37-6	6 18-4	2-6	1-1	8-6	3-8	14-6	6-4
27	6 36-8	6 37-8	6 18-7	2-7	1-2	8-7	3-8	14-7	6-5
28	6 37-0	6 38-1	6 18-9	2-8	1-2	8-8	3-9	14-8	6-5
29	6 37-3	6 38-3	6 19-2	2-9	1-3	8-9	3-9	14-9	6-6
30	6 37-5	6 38-6	6 19-4	3-0	1-3	9-0	4-0	15-0	6-6
31	6 37-8	6 38-8	6 19-6	3-1	1-4	9-1	4-0	15-1	6-7
32	6 38-0	6 39-1	6 19-9	3-2	1-4	9-2	4-1	15-2	6-7
33	6 38-3	6 39-3	6 20-1	3-3	1-5	9-3	4-1	15-3	6-8
34	6 38-5	6 39-6	6 20-3	3-4	1-5	9-4	4-2	15-4	6-8
35	6 38-8	6 39-8	6 20-6	3-5	1-5	9-5	4-2	15-5	6-8
36	6 39-0	6 40-1	6 20-8	3-6	1-6	9-6	4-2	15-6	6-9
37	6 39-3	6 40-3	6 21-1	3-7	1-6	9-7	4-3	15-7	6-9
38	6 39-5	6 40-6	6 21-3	3-8	1-7	9-8	4-3	15-8	7-0
39	6 39-8	6 40-8	6 21-5	3-9	1-7	9-9	4-4	15-9	7-0
40	6 40-0	6 41-1	6 21-8	4-0	1-8	10-0	4-4	16-0	7-1
41	6 40-3	6 41-3	6 22-0	4-1	1-8	10-1	4-5	16-1	7-1
42	6 40-5	6 41-6	6 22-3	4-2	1-9	10-2	4-5	16-2	7-2
43	6 40-8	6 41-8	6 22-5	4-3	1-9	10-3	4-5	16-3	7-2
44	6 41-0	6 42-1	6 22-7	4-4	1-9	10-4	4-6	16-4	7-2
45	6 41-3	6 42-3	6 23-0	4-5	2-0	10-5	4-6	16-5	7-3
46	6 41-5	6 42-6	6 23-2	4-6	2-0	10-6	4-7	16-6	7-3
47	6 41-8	6 42-8	6 23-4	4-7	2-1	10-7	4-7	16-7	7-4
48	6 42-0	6 43-1	6 23-7	4-8	2-1	10-8	4-8	16-8	7-4
49	6 42-3	6 43-4	6 23-9	4-9	2-2	10-9	4-8	16-9	7-5
50	6 42-5	6 43-6	6 24-2	5-0	2-2	11-0	4-9	17-0	7-5
51	6 42-8	6 43-9	6 24-4	5-1	2-3	11-1	4-9	17-1	7-6
52	6 43-0	6 44-1	6 24-6	5-2	2-3	11-2	4-9	17-2	7-6
53	6 43-3	6 44-4	6 24-9	5-3	2-3	11-3	5-0	17-3	7-6
54	6 43-5	6 44-6	6 25-1	5-4	2-4	11-4	5-0	17-4	7-7
55	6 43-8	6 44-9	6 25-4	5-5	2-4	11-5	5-1	17-5	7-7
56	6 44-0	6 45-1	6 25-6	5-6	2-5	11-6	5-1	17-6	7-8
57	6 44-3	6 45-4	6 25-8	5-7	2-5	11-7	5-2	17-7	7-8
58	6 44-5	6 45-6	6 26-1	5-8	2-6	11-8	5-2	17-8	7-9
59	6 44-8	6 45-9	6 26-3	5-9	2-6	11-9	5-3	17-9	7-9
60	6 45-0	6 46-1	6 26-6	6-0	2-7	12-0	5-3	18-0	8-0

27 ^m	SUN PLANETS	ARIES	MOON	v or d	Corr ⁿ	v or d	Corr ⁿ	v or d	Corr ⁿ
s	o	o	o	/	/	/	/	/	/
00	6 45-0	6 46-1	6 26-6	0-0	0-0	6-0	2-8	12-0	5-5
01	6 45-3	6 46-4	6 26-8	0-1	0-0	6-1	2-8	12-1	5-5
02	6 45-5	6 46-6	6 27-0	0-2	0-1	6-2	2-8	12-2	5-6
03	6 45-8	6 46-9	6 27-3	0-3	0-1	6-3	2-9	12-3	5-6
04	6 46-0	6 47-1	6 27-5	0-4	0-2	6-4	2-9	12-4	5-7
05	6 46-3	6 47-4	6 27-7	0-5	0-2	6-5	3-0	12-5	5-7
06	6 46-5	6 47-6	6 28-0	0-6	0-3	6-6	3-0	12-6	5-8
07	6 46-8	6 47-9	6 28-2	0-7	0-3	6-7	3-1	12-7	5-8
08	6 47-0	6 48-1	6 28-5	0-8	0-4	6-8	3-1	12-8	5-9
09	6 47-3	6 48-4	6 28-7	0-9	0-4	6-9	3-2	12-9	5-9
10	6 47-5	6 48-6	6 28-9	1-0	0-5	7-0	3-2	13-0	6-0
11	6 47-8	6 48-9	6 29-2	1-1	0-5	7-1	3-3	13-1	6-0
12	6 48-0	6 49-1	6 29-4	1-2	0-6	7-2	3-3	13-2	6-1
13	6 48-3	6 49-4	6 29-7	1-3	0-6	7-3	3-3	13-3	6-1
14	6 48-5	6 49-6	6 29-9	1-4	0-6	7-4	3-4	13-4	6-1
15	6 48-8	6 49-9	6 30-1	1-5	0-7	7-5	3-4	13-5	6-2
16	6 49-0	6 50-1	6 30-4	1-6	0-7	7-6	3-5	13-6	6-2
17	6 49-3	6 50-4	6 30-6	1-7	0-8	7-7	3-5	13-7	6-3
18	6 49-5	6 50-6	6 30-8	1-8	0-8	7-8	3-6	13-8	6-3
19	6 49-8	6 50-9	6 31-1	1-9	0-9	7-9	3-6	13-9	6-4
20	6 50-0	6 51-1	6 31-3	2-0	0-9	8-0	3-7	14-0	6-4
21	6 50-3	6 51-4	6 31-6	2-1	1-0	8-1	3-7	14-1	6-5
22	6 50-5	6 51-6	6 31-8	2-2	1-0	8-2	3-8	14-2	6-5
23	6 50-8	6 51-9	6 32-0	2-3	1-1	8-3	3-8	14-3	6-6
24	6 51-0	6 52-1	6 32-3	2-4	1-1	8-4	3-9	14-4	6-6
25	6 51-3	6 52-4	6 32-5	2-5	1-1	8-5	3-9	14-5	6-6
26	6 51-5	6 52-6	6 32-8	2-6	1-2	8-6	3-9	14-6	6-7
27	6 51-8	6 52-9	6 33-0	2-7	1-2	8-7	4-0	14-7	6-7
28	6 52-0	6 53-1	6 33-2	2-8	1-3	8-8	4-0	14-8	6-8
29	6 52-3	6 53-4	6 33-5	2-9	1-3	8-9	4-1	14-9	6-8
30	6 52-5	6 53-6	6 33-7	3-0	1-4	9-0	4-1	15-0	6-9
31	6 52-8	6 53-9	6 33-9	3-1	1-4	9-1	4-2	15-1	6-9
32	6 53-0	6 54-1	6 34-2	3-2	1-5	9-2	4-2	15-2	7-0
33	6 53-3	6 54-4	6 34-4	3-3	1-5	9-3	4-3	15-3	7-0
34	6 53-5	6 54-6	6 34-7	3-4	1-6	9-4	4-3	15-4	7-1
35	6 53-8	6 54-9	6 34-9	3-5	1-6	9-5	4-4	15-5	7-1
36	6 54-0	6 55-1	6 35-1	3-6	1-7	9-6	4-4	15-6	7-2
37	6 54-3	6 55-4	6 35-4	3-7	1-7	9-7	4-4	15-7	7-2
38	6 54-5	6 55-6	6 35-6	3-8	1-7	9-8	4-5	15-8	7-2
39	6 54-8	6 55-9	6 35-9	3-9	1-8	9-9	4-5	15-9	7-3
40	6 55-0	6 56-1	6 36-1	4-0	1-8	10-0	4-6	16-0	7-3
41	6 55-3	6 56-4	6 36-3	4-1	1-9	10-1	4-6	16-1	7-4
42	6 55-5	6 56-6	6 36-6	4-2	1-9	10-2	4-7	16-2	7-4
43	6 55-8	6 56-9	6 36-8	4-3	2-0	10-3	4-7	16-3	7-5
44	6 56-0	6 57-1	6 37-0	4-4	2-0	10-4	4-8	16-4	7-5
45	6 56-3	6 57-4	6 37-3	4-5	2-1	10-5	4-8	16-5	7-6
46	6 56-5	6 57-6	6 37-5	4-6	2-1	10-6	4-9	16-6	7-6
47	6 56-8	6 57-9	6 37-8	4-7	2-2	10-7	4-9	16-7	7-7
48	6 57-0	6 58-1	6 38-0	4-8	2-2	10-8	5-0	16-8	7-7
49	6 57-3	6 58-4	6 38-2	4-9	2-2	10-9	5-0	16-9	7-7
50	6 57-5	6 58-6	6 38-5	5-0	2-3	11-0	5-0	17-0	7-8
51	6 57-8	6 58-9	6 38-7	5-1	2-3	11-1	5-1	17-1	7-8
52	6 58-0	6 59-1	6 39-0	5-2	2-4	11-2	5-1	17-2	7-9
53	6 58-3	6 59-4	6 39-2	5-3	2-4	11-3	5-2	17-3	7-9
54	6 58-5	6 59-6	6 39-4	5-4	2-5	11-4	5-2	17-4	8-0
55	6 58-8	6 59-9	6 39-7	5-5	2-5	11-5	5-3	17-5	8-0
56	6 59-0	7 00-1	6 39-9	5-6	2-6	11-6	5-3	17-6	8-1
57	6 59-3	7 00-4	6 40-2	5-7	2-6	11-7	5-4	17-7	8-1
58	6 59-5	7 00-6	6 40-4	5-8	2-7	11-8	5-4	17-8	8-2
59	6 59-8	7 00-9	6 40-6	5-9	2-7	11-9	5-5	17-9	8-2
60	7 00-0	7 01-1	6 40-9	6-0	2-8	12-0	5-5	18-0	8-3

28 ^m	SUN PLANETS	ARIES	MOON	v or d	Corr ⁿ	v or d	Corr ⁿ	v or d	Corr ⁿ
s	o	o	o	'	'	'	'	'	'
00	7 00-0	7 01-1	6 40-9	0-0	0-0	6-0	2-9	12-0	5-7
01	7 00-3	7 01-4	6 41-1	0-1	0-0	6-1	2-9	12-1	5-7
02	7 00-5	7 01-7	6 41-3	0-2	0-1	6-2	2-9	12-2	5-8
03	7 00-8	7 01-9	6 41-6	0-3	0-1	6-3	3-0	12-3	5-8
04	7 01-0	7 02-2	6 41-8	0-4	0-2	6-4	3-0	12-4	5-9
05	7 01-3	7 02-4	6 42-1	0-5	0-2	6-5	3-1	12-5	5-9
06	7 01-5	7 02-7	6 42-3	0-6	0-3	6-6	3-1	12-6	6-0
07	7 01-8	7 02-9	6 42-5	0-7	0-3	6-7	3-2	12-7	6-0
08	7 02-0	7 03-2	6 42-8	0-8	0-4	6-8	3-2	12-8	6-1
09	7 02-3	7 03-4	6 43-0	0-9	0-4	6-9	3-3	12-9	6-1
10	7 02-5	7 03-7	6 43-3	1-0	0-5	7-0	3-3	13-0	6-2
11	7 02-8	7 03-9	6 43-5	1-1	0-5	7-1	3-4	13-1	6-2
12	7 03-0	7 04-2	6 43-7	1-2	0-6	7-2	3-4	13-2	6-3
13	7 03-3	7 04-4	6 44-0	1-3	0-6	7-3	3-5	13-3	6-3
14	7 03-5	7 04-7	6 44-2	1-4	0-7	7-4	3-5	13-4	6-4
15	7 03-8	7 04-9	6 44-4	1-5	0-7	7-5	3-6	13-5	6-4
16	7 04-0	7 05-2	6 44-7	1-6	0-8	7-6	3-6	13-6	6-5
17	7 04-3	7 05-4	6 44-9	1-7	0-8	7-7	3-7	13-7	6-5
18	7 04-5	7 05-7	6 45-2	1-8	0-9	7-8	3-7	13-8	6-6
19	7 04-8	7 05-9	6 45-4	1-9	0-9	7-9	3-8	13-9	6-6
20	7 05-0	7 06-2	6 45-6	2-0	1-0	8-0	3-8	14-0	6-7
21	7 05-3	7 06-4	6 45-9	2-1	1-0	8-1	3-8	14-1	6-7
22	7 05-5	7 06-7	6 46-1	2-2	1-0	8-2	3-9	14-2	6-7
23	7 05-8	7 06-9	6 46-4	2-3	1-1	8-3	3-9	14-3	6-8
24	7 06-0	7 07-2	6 46-6	2-4	1-1	8-4	4-0	14-4	6-8
25	7 06-3	7 07-4	6 46-8	2-5	1-2	8-5	4-0	14-5	6-9
26	7 06-5	7 07-7	6 47-1	2-6	1-2	8-6	4-1	14-6	6-9
27	7 06-8	7 07-9	6 47-3	2-7	1-3	8-7	4-1	14-7	7-0
28	7 07-0	7 08-2	6 47-5	2-8	1-3	8-8	4-2	14-8	7-0
29	7 07-3	7 08-4	6 47-8	2-9	1-4	8-9	4-2	14-9	7-1
30	7 07-5	7 08-7	6 48-0	3-0	1-4	9-0	4-3	15-0	7-1
31	7 07-8	7 08-9	6 48-3	3-1	1-5	9-1	4-3	15-1	7-2
32	7 08-0	7 09-2	6 48-5	3-2	1-5	9-2	4-4	15-2	7-2
33	7 08-3	7 09-4	6 48-7	3-3	1-6	9-3	4-4	15-3	7-3
34	7 08-5	7 09-7	6 49-0	3-4	1-6	9-4	4-5	15-4	7-3
35	7 08-8	7 09-9	6 49-2	3-5	1-7	9-5	4-5	15-5	7-4
36	7 09-0	7 10-2	6 49-5	3-6	1-7	9-6	4-6	15-6	7-4
37	7 09-3	7 10-4	6 49-7	3-7	1-8	9-7	4-6	15-7	7-5
38	7 09-5	7 10-7	6 49-9	3-8	1-8	9-8	4-7	15-8	7-5
39	7 09-8	7 10-9	6 50-2	3-9	1-9	9-9	4-7	15-9	7-6
40	7 10-0	7 11-2	6 50-4	4-0	1-9	10-0	4-8	16-0	7-6
41	7 10-3	7 11-4	6 50-6	4-1	1-9	10-1	4-8	16-1	7-6
42	7 10-5	7 11-7	6 50-9	4-2	2-0	10-2	4-8	16-2	7-7
43	7 10-8	7 11-9	6 51-1	4-3	2-0	10-3	4-9	16-3	7-7
44	7 11-0	7 12-2	6 51-4	4-4	2-1	10-4	4-9	16-4	7-8
45	7 11-3	7 12-4	6 51-6	4-5	2-1	10-5	5-0	16-5	7-8
46	7 11-5	7 12-7	6 51-8	4-6	2-2	10-6	5-0	16-6	7-9
47	7 11-8	7 12-9	6 52-1	4-7	2-2	10-7	5-1	16-7	7-9
48	7 12-0	7 13-2	6 52-3	4-8	2-3	10-8	5-1	16-8	8-0
49	7 12-3	7 13-4	6 52-6	4-9	2-3	10-9	5-2	16-9	8-0
50	7 12-5	7 13-7	6 52-8	5-0	2-4	11-0	5-2	17-0	8-1
51	7 12-8	7 13-9	6 53-0	5-1	2-4	11-1	5-3	17-1	8-1
52	7 13-0	7 14-2	6 53-3	5-2	2-5	11-2	5-3	17-2	8-2
53	7 13-3	7 14-4	6 53-5	5-3	2-5	11-3	5-4	17-3	8-2
54	7 13-5	7 14-7	6 53-8	5-4	2-6	11-4	5-4	17-4	8-3
55	7 13-8	7 14-9	6 54-0	5-5	2-6	11-5	5-5	17-5	8-3
56	7 14-0	7 15-2	6 54-2	5-6	2-7	11-6	5-5	17-6	8-4
57	7 14-3	7 15-4	6 54-5	5-7	2-7	11-7	5-6	17-7	8-4
58	7 14-5	7 15-7	6 54-7	5-8	2-8	11-8	5-6	17-8	8-5
59	7 14-8	7 15-9	6 54-9	5-9	2-8	11-9	5-7	17-9	8-5
60	7 15-0	7 16-2	6 55-2	6-0	2-9	12-0	5-7	18-0	8-6

29 ^m	SUN PLANETS	ARIES	MOON	v or d	Corr ⁿ	v or d	Corr ⁿ	v or d	Corr ⁿ
s	o	o	o	'	'	'	'	'	'
00	7 15-0	7 16-2	6 55-2	0-0	0-0	6-0	3-0	12-0	5-9
01	7 15-3	7 16-4	6 55-4	0-1	0-0	6-1	3-0	12-1	5-9
02	7 15-5	7 16-7	6 55-7	0-2	0-1	6-2	3-0	12-2	6-0
03	7 15-8	7 16-9	6 55-9	0-3	0-1	6-3	3-1	12-3	6-0
04	7 16-0	7 17-2	6 56-1	0-4	0-2	6-4	3-1	12-4	6-1
05	7 16-3	7 17-4	6 56-4	0-5	0-2	6-5	3-2	12-5	6-1
06	7 16-5	7 17-7	6 56-6	0-6	0-3	6-6	3-2	12-6	6-2
07	7 16-8	7 17-9	6 56-9	0-7	0-3	6-7	3-3	12-7	6-2
08	7 17-0	7 18-2	6 57-1	0-8	0-4	6-8	3-3	12-8	6-3
09	7 17-3	7 18-4	6 57-3	0-9	0-4	6-9	3-4	12-9	6-3
10	7 17-5	7 18-7	6 57-6	1-0	0-5	7-0	3-4	13-0	6-4
11	7 17-8	7 18-9	6 57-8	1-1	0-5	7-1	3-5	13-1	6-4
12	7 18-0	7 19-2	6 58-0	1-2	0-6	7-2	3-5	13-2	6-5
13	7 18-3	7 19-4	6 58-3	1-3	0-6	7-3	3-6	13-3	6-5
14	7 18-5	7 19-7	6 58-5	1-4	0-7	7-4	3-6	13-4	6-6
15	7 18-8	7 20-0	6 58-8	1-5	0-7	7-5	3-7	13-5	6-6
16	7 19-0	7 20-2	6 59-0	1-6	0-8	7-6	3-7	13-6	6-7
17	7 19-3	7 20-5	6 59-2	1-7	0-8	7-7	3-8	13-7	6-7
18	7 19-5	7 20-7	6 59-5	1-8	0-9	7-8	3-8	13-8	6-8
19	7 19-8	7 21-0	6 59-7	1-9	0-9	7-9	3-9	13-9	6-8
20	7 20-0	7 21-2	7 00-0	2-0	1-0	8-0	3-9	14-0	6-9
21	7 20-3	7 21-5	7 00-2	2-1	1-0	8-1	4-0	14-1	6-9
22	7 20-5	7 21-7	7 00-4	2-2	1-1	8-2	4-0	14-2	7-0
23	7 20-8	7 22-0	7 00-7	2-3	1-1	8-3	4-1	14-3	7-0
24	7 21-0	7 22-2	7 00-9	2-4	1-2	8-4	4-1	14-4	7-1
25	7 21-3	7 22-5	7 01-1	2-5	1-2	8-5	4-2	14-5	7-1
26	7 21-5	7 22-7	7 01-4	2-6	1-3	8-6	4-2	14-6	7-2
27	7 21-8	7 23-0	7 01-6	2-7	1-3	8-7	4-3	14-7	7-2
28	7 22-0	7 23-2	7 01-9	2-8	1-4	8-8	4-3	14-8	7-3
29	7 22-3	7 23-5	7 02-1	2-9	1-4	8-9	4-4	14-9	7-3
30	7 22-5	7 23-7	7 02-3	3-0	1-5	9-0	4-4	15-0	7-4
31	7 22-8	7 24-0	7 02-6	3-1	1-5	9-1	4-5	15-1	7-4
32	7 23-0	7 24-2	7 02-8	3-2	1-6	9-2	4-5	15-2	7-5
33	7 23-3	7 24-5	7 03-1	3-3	1-6	9-3	4-6	15-3	7-5
34	7 23-5	7 24-7	7 03-3	3-4	1-7	9-4	4-6	15-4	7-6
35	7 23-8	7 25-0	7 03-5	3-5	1-7	9-5	4-7	15-5	7-6
36	7 24-0	7 25-2	7 03-8	3-6	1-8	9-6	4-7	15-6	7-7
37	7 24-3	7 25-5	7 04-0	3-7	1-8	9-7	4-8	15-7	7-7
38	7 24-5	7 25-7	7 04-3	3-8	1-9	9-8	4-8	15-8	7-8
39	7 24-8	7 26-0	7 04-5	3-9	1-9	9-9	4-9	15-9	7-8
40	7 25-0	7 26-2	7 04-7	4-0	2-0	10-0	4-9	16-0	7-9
41	7 25-3	7 26-5	7 05-0	4-1	2-0	10-1	5-0	16-1	7-9
42	7 25-5	7 26-7	7 05-2	4-2	2-1	10-2	5-0	16-2	8-0
43	7 25-8	7 27-0	7 05-4	4-3	2-1	10-3	5-1	16-3	8-0
44	7 26-0	7 27-2	7 05-7	4-4	2-2	10-4	5-1	16-4	8-1
45	7 26-3	7 27-5	7 05-9	4-5	2-2	10-5	5-2	16-5	8-1
46	7 26-5	7 27-7	7 06-2	4-6	2-3	10-6	5-2	16-6	8-2
47	7 26-8	7 28-0	7 06-4	4-7	2-3	10-7	5-3	16-7	8-2
48	7 27-0	7 28-2	7 06-6	4-8	2-4	10-8	5-3	16-8	8-3
49	7 27-3	7 28-5	7 06-9	4-9	2-4	10-9	5-4	16-9	8-3
50	7 27-5	7 28-7	7 07-1	5-0	2-5	11-0	5-4	17-0	8-4
51	7 27-8	7 29-0	7 07-4	5-1	2-5	11-1	5-5	17-1	8-4
52	7 28-0	7 29-2	7 07-6	5-2	2-6	11-2	5-5	17-2	8-5
53	7 28-3	7 29-5	7 07-8	5-3	2-6	11-3	5-6	17-3	8-5
54	7 28-5	7 29-7	7 08-1	5-4	2-7	11-4	5-6	17-4	8-6
55	7 28-8	7 30-0	7 08-3	5-5	2-7	11-5	5-7	17-5	8-6
56	7 29-0	7 30-2	7 08-5	5-6	2-8	11-6	5-7	17-6	8-7
57	7 29-3	7 30-5	7 08-8	5-7	2-8	11-7	5-8	17-7	8-7
58	7 29-5	7 30-7	7 09-0	5-8	2-9	11-8	5-8	17-8	8-8
59	7 29-8	7 31-0	7 09-3	5-9	2-9	11-9	5-9	17-9	8-8
60	7 30-0	7 31-2	7 09-5	6-0	3-0	12-0	5-9	18-0	8-9

30 ^m	SUN PLANETS	ARIES	MOON	ν or Corr ⁿ d	ν or Corr ⁿ d	ν or Corr ⁿ d
s	o /	o /	o /	/ /	/ /	/ /
00	7 30-0	7 31-2	7 09-5	0-0 0-0	6-0 3-1	12-0 6-1
01	7 30-3	7 31-5	7 09-7	0-1 0-1	6-1 3-1	12-1 6-2
02	7 30-5	7 31-7	7 10-0	0-2 0-1	6-2 3-2	12-2 6-2
03	7 30-8	7 32-0	7 10-2	0-3 0-2	6-3 3-2	12-3 6-3
04	7 31-0	7 32-2	7 10-5	0-4 0-2	6-4 3-3	12-4 6-3
05	7 31-3	7 32-5	7 10-7	0-5 0-3	6-5 3-3	12-5 6-4
06	7 31-5	7 32-7	7 10-9	0-6 0-3	6-6 3-4	12-6 6-4
07	7 31-8	7 33-0	7 11-2	0-7 0-4	6-7 3-4	12-7 6-5
08	7 32-0	7 33-2	7 11-4	0-8 0-4	6-8 3-5	12-8 6-5
09	7 32-3	7 33-5	7 11-6	0-9 0-5	6-9 3-5	12-9 6-6
10	7 32-5	7 33-7	7 11-9	1-0 0-5	7-0 3-6	13-0 6-6
11	7 32-8	7 34-0	7 12-1	1-1 0-6	7-1 3-6	13-1 6-7
12	7 33-0	7 34-2	7 12-4	1-2 0-6	7-2 3-7	13-2 6-7
13	7 33-3	7 34-5	7 12-6	1-3 0-7	7-3 3-7	13-3 6-8
14	7 33-5	7 34-7	7 12-8	1-4 0-7	7-4 3-8	13-4 6-8
15	7 33-8	7 35-0	7 13-1	1-5 0-8	7-5 3-8	13-5 6-9
16	7 34-0	7 35-2	7 13-3	1-6 0-8	7-6 3-9	13-6 6-9
17	7 34-3	7 35-5	7 13-6	1-7 0-9	7-7 3-9	13-7 7-0
18	7 34-5	7 35-7	7 13-8	1-8 0-9	7-8 4-0	13-8 7-0
19	7 34-8	7 36-0	7 14-0	1-9 1-0	7-9 4-0	13-9 7-1
20	7 35-0	7 36-2	7 14-3	2-0 1-0	8-0 4-1	14-0 7-1
21	7 35-3	7 36-5	7 14-5	2-1 1-1	8-1 4-1	14-1 7-2
22	7 35-5	7 36-7	7 14-7	2-2 1-1	8-2 4-2	14-2 7-2
23	7 35-8	7 37-0	7 15-0	2-3 1-2	8-3 4-2	14-3 7-3
24	7 36-0	7 37-2	7 15-2	2-4 1-2	8-4 4-3	14-4 7-3
25	7 36-3	7 37-5	7 15-5	2-5 1-3	8-5 4-3	14-5 7-4
26	7 36-5	7 37-7	7 15-7	2-6 1-3	8-6 4-4	14-6 7-4
27	7 36-8	7 38-0	7 15-9	2-7 1-4	8-7 4-4	14-7 7-5
28	7 37-0	7 38-3	7 16-2	2-8 1-4	8-8 4-5	14-8 7-5
29	7 37-3	7 38-5	7 16-4	2-9 1-5	8-9 4-5	14-9 7-6
30	7 37-5	7 38-8	7 16-7	3-0 1-5	9-0 4-6	15-0 7-6
31	7 37-8	7 39-0	7 16-9	3-1 1-6	9-1 4-6	15-1 7-7
32	7 38-0	7 39-3	7 17-1	3-2 1-6	9-2 4-7	15-2 7-7
33	7 38-3	7 39-5	7 17-4	3-3 1-7	9-3 4-7	15-3 7-8
34	7 38-5	7 39-8	7 17-6	3-4 1-7	9-4 4-8	15-4 7-8
35	7 38-8	7 40-0	7 17-9	3-5 1-8	9-5 4-8	15-5 7-9
36	7 39-0	7 40-3	7 18-1	3-6 1-8	9-6 4-9	15-6 7-9
37	7 39-3	7 40-5	7 18-3	3-7 1-9	9-7 4-9	15-7 8-0
38	7 39-5	7 40-8	7 18-6	3-8 1-9	9-8 5-0	15-8 8-0
39	7 39-8	7 41-0	7 18-8	3-9 2-0	9-9 5-0	15-9 8-1
40	7 40-0	7 41-3	7 19-0	4-0 2-0	10-0 5-1	16-0 8-1
41	7 40-3	7 41-5	7 19-3	4-1 2-1	10-1 5-1	16-1 8-2
42	7 40-5	7 41-8	7 19-5	4-2 2-1	10-2 5-2	16-2 8-2
43	7 40-8	7 42-0	7 19-8	4-3 2-2	10-3 5-2	16-3 8-3
44	7 41-0	7 42-3	7 20-0	4-4 2-2	10-4 5-3	16-4 8-3
45	7 41-3	7 42-5	7 20-2	4-5 2-3	10-5 5-3	16-5 8-4
46	7 41-5	7 42-8	7 20-5	4-6 2-3	10-6 5-4	16-6 8-4
47	7 41-8	7 43-0	7 20-7	4-7 2-4	10-7 5-4	16-7 8-5
48	7 42-0	7 43-3	7 21-0	4-8 2-4	10-8 5-5	16-8 8-5
49	7 42-3	7 43-5	7 21-2	4-9 2-5	10-9 5-5	16-9 8-6
50	7 42-5	7 43-8	7 21-4	5-0 2-5	11-0 5-6	17-0 8-6
51	7 42-8	7 44-0	7 21-7	5-1 2-6	11-1 5-6	17-1 8-7
52	7 43-0	7 44-3	7 21-9	5-2 2-6	11-2 5-7	17-2 8-7
53	7 43-3	7 44-5	7 22-1	5-3 2-7	11-3 5-7	17-3 8-8
54	7 43-5	7 44-8	7 22-4	5-4 2-7	11-4 5-8	17-4 8-8
55	7 43-8	7 45-0	7 22-6	5-5 2-8	11-5 5-8	17-5 8-9
56	7 44-0	7 45-3	7 22-9	5-6 2-8	11-6 5-9	17-6 8-9
57	7 44-3	7 45-5	7 23-1	5-7 2-9	11-7 5-9	17-7 9-0
58	7 44-5	7 45-8	7 23-3	5-8 2-9	11-8 6-0	17-8 9-0
59	7 44-8	7 46-0	7 23-6	5-9 3-0	11-9 6-0	17-9 9-1
60	7 45-0	7 46-3	7 23-8	6-0 3-1	12-0 6-1	18-0 9-2

31 ^m	SUN PLANETS	ARIES	MOON	ν or Corr ⁿ d	ν or Corr ⁿ d	ν or Corr ⁿ d
s	o /	o /	o /	/ /	/ /	/ /
00	7 45-0	7 46-3	7 23-8	0-0 0-0	6-0 3-2	12-0 6-3
01	7 45-3	7 46-5	7 24-1	0-1 0-1	6-1 3-2	12-1 6-4
02	7 45-5	7 46-8	7 24-3	0-2 0-1	6-2 3-3	12-2 6-4
03	7 45-8	7 47-0	7 24-5	0-3 0-2	6-3 3-3	12-3 6-5
04	7 46-0	7 47-3	7 24-8	0-4 0-2	6-4 3-4	12-4 6-5
05	7 46-3	7 47-5	7 25-0	0-5 0-3	6-5 3-4	12-5 6-6
06	7 46-5	7 47-8	7 25-2	0-6 0-3	6-6 3-5	12-6 6-6
07	7 46-8	7 48-0	7 25-5	0-7 0-4	6-7 3-5	12-7 6-7
08	7 47-0	7 48-3	7 25-7	0-8 0-4	6-8 3-6	12-8 6-7
09	7 47-3	7 48-5	7 26-0	0-9 0-5	6-9 3-6	12-9 6-8
10	7 47-5	7 48-8	7 26-2	1-0 0-5	7-0 3-7	13-0 6-8
11	7 47-8	7 49-0	7 26-4	1-1 0-6	7-1 3-7	13-1 6-9
12	7 48-0	7 49-3	7 26-7	1-2 0-6	7-2 3-8	13-2 6-9
13	7 48-3	7 49-5	7 26-9	1-3 0-7	7-3 3-8	13-3 7-0
14	7 48-5	7 49-8	7 27-2	1-4 0-7	7-4 3-9	13-4 7-0
15	7 48-8	7 50-0	7 27-4	1-5 0-8	7-5 3-9	13-5 7-1
16	7 49-0	7 50-3	7 27-6	1-6 0-8	7-6 4-0	13-6 7-1
17	7 49-3	7 50-5	7 27-9	1-7 0-9	7-7 4-0	13-7 7-2
18	7 49-5	7 50-8	7 28-1	1-8 0-9	7-8 4-1	13-8 7-2
19	7 49-8	7 51-0	7 28-4	1-9 1-0	7-9 4-1	13-9 7-3
20	7 50-0	7 51-3	7 28-6	2-0 1-1	8-0 4-2	14-0 7-4
21	7 50-3	7 51-5	7 28-8	2-1 1-1	8-1 4-3	14-1 7-4
22	7 50-5	7 51-8	7 29-1	2-2 1-2	8-2 4-3	14-2 7-5
23	7 50-8	7 52-0	7 29-3	2-3 1-2	8-3 4-4	14-3 7-5
24	7 51-0	7 52-3	7 29-5	2-4 1-3	8-4 4-4	14-4 7-6
25	7 51-3	7 52-5	7 29-8	2-5 1-3	8-5 4-5	14-5 7-6
26	7 51-5	7 52-8	7 30-0	2-6 1-4	8-6 4-5	14-6 7-7
27	7 51-8	7 53-0	7 30-3	2-7 1-4	8-7 4-6	14-7 7-7
28	7 52-0	7 53-3	7 30-5	2-8 1-5	8-8 4-6	14-8 7-8
29	7 52-3	7 53-5	7 30-7	2-9 1-5	8-9 4-7	14-9 7-8
30	7 52-5	7 53-8	7 31-0	3-0 1-6	9-0 4-7	15-0 7-9
31	7 52-8	7 54-0	7 31-2	3-1 1-6	9-1 4-8	15-1 7-9
32	7 53-0	7 54-3	7 31-5	3-2 1-7	9-2 4-8	15-2 8-0
33	7 53-3	7 54-5	7 31-7	3-3 1-7	9-3 4-9	15-3 8-0
34	7 53-5	7 54-8	7 31-9	3-4 1-8	9-4 4-9	15-4 8-1
35	7 53-8	7 55-0	7 32-2	3-5 1-8	9-5 5-0	15-5 8-1
36	7 54-0	7 55-3	7 32-4	3-6 1-9	9-6 5-0	15-6 8-2
37	7 54-3	7 55-5	7 32-6	3-7 1-9	9-7 5-1	15-7 8-2
38	7 54-5	7 55-8	7 32-9	3-8 2-0	9-8 5-1	15-8 8-3
39	7 54-8	7 56-0	7 33-1	3-9 2-0	9-9 5-2	15-9 8-3
40	7 55-0	7 56-3	7 33-4	4-0 2-1	10-0 5-3	16-0 8-4
41	7 55-3	7 56-6	7 33-6	4-1 2-2	10-1 5-3	16-1 8-5
42	7 55-5	7 56-8	7 33-8	4-2 2-2	10-2 5-4	16-2 8-5
43	7 55-8	7 57-1	7 34-1	4-3 2-3	10-3 5-4	16-3 8-6
44	7 56-0	7 57-3	7 34-3	4-4 2-3	10-4 5-5	16-4 8-6
45	7 56-3	7 57-6	7 34-6	4-5 2-4	10-5 5-5	16-5 8-7
46	7 56-5	7 57-8	7 34-8	4-6 2-4	10-6 5-6	16-6 8-7
47	7 56-8	7 58-1	7 35-0	4-7 2-5	10-7 5-6	16-7 8-8
48	7 57-0	7 58-3	7 35-3	4-8 2-5	10-8 5-7	16-8 8-8
49	7 57-3	7 58-6	7 35-5	4-9 2-6	10-9 5-7	16-9 8-9
50	7 57-5	7 58-8	7 35-7	5-0 2-6	11-0 5-8	17-0 8-9
51	7 57-8	7 59-1	7 36-0	5-1 2-7	11-1 5-8	17-1 9-0
52	7 58-0	7 59-3	7 36-2	5-2 2-7	11-2 5-9	17-2 9-0
53	7 58-3	7 59-6	7 36-5	5-3 2-8	11-3 5-9	17-3 9-1
54	7 58-5	7 59-8	7 36-7	5-4 2-8	11-4 6-0	17-4 9-1
55	7 58-8	8 00-1	7 36-9	5-5 2-9	11-5 6-0	17-5 9-2
56	7 59-0	8 00-3	7 37-2	5-6 2-9	11-6 6-1	17-6 9-2
57	7 59-3	8 00-6	7 37-4	5-7 3-0	11-7 6-1	17-7 9-3
58	7 59-5	8 00-8	7 37-7	5-8 3-0	11-8 6-2	17-8 9-3
59	7 59-8	8 01-1	7 37-9	5-9 3-1	11-9 6-2	17-9 9-4
60	8 00-0	8 01-3	7 38-1	6-0 3-2	12-0 6-3	18-0 9-5

^m 32	SUN PLANETS	ARIES	MOON	ν or d	Corr ⁿ	ν or d	Corr ⁿ	ν or d	Corr ⁿ
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00	8 00-0	8 01-3	7 38-1	0-0	0-0	6-0	3-3	12-0	6-5
01	8 00-3	8 01-6	7 38-4	0-1	0-1	6-1	3-3	12-1	6-6
02	8 00-5	8 01-8	7 38-6	0-2	0-1	6-2	3-4	12-2	6-6
03	8 00-8	8 02-1	7 38-8	0-3	0-2	6-3	3-4	12-3	6-7
04	8 01-0	8 02-3	7 39-1	0-4	0-2	6-4	3-5	12-4	6-7
05	8 01-3	8 02-6	7 39-3	0-5	0-3	6-5	3-5	12-5	6-8
06	8 01-5	8 02-8	7 39-6	0-6	0-3	6-6	3-6	12-6	6-8
07	8 01-8	8 03-1	7 39-8	0-7	0-4	6-7	3-6	12-7	6-9
08	8 02-0	8 03-3	7 40-0	0-8	0-4	6-8	3-7	12-8	6-9
09	8 02-3	8 03-6	7 40-3	0-9	0-5	6-9	3-7	12-9	7-0
10	8 02-5	8 03-8	7 40-5	1-0	0-5	7-0	3-8	13-0	7-0
11	8 02-8	8 04-1	7 40-8	1-1	0-6	7-1	3-8	13-1	7-1
12	8 03-0	8 04-3	7 41-0	1-2	0-7	7-2	3-9	13-2	7-2
13	8 03-3	8 04-6	7 41-2	1-3	0-7	7-3	4-0	13-3	7-2
14	8 03-5	8 04-8	7 41-5	1-4	0-8	7-4	4-0	13-4	7-3
15	8 03-8	8 05-1	7 41-7	1-5	0-8	7-5	4-1	13-5	7-3
16	8 04-0	8 05-3	7 42-0	1-6	0-9	7-6	4-1	13-6	7-4
17	8 04-3	8 05-6	7 42-2	1-7	0-9	7-7	4-2	13-7	7-4
18	8 04-5	8 05-8	7 42-4	1-8	1-0	7-8	4-2	13-8	7-5
19	8 04-8	8 06-1	7 42-7	1-9	1-0	7-9	4-3	13-9	7-5
20	8 05-0	8 06-3	7 42-9	2-0	1-1	8-0	4-3	14-0	7-6
21	8 05-3	8 06-6	7 43-1	2-1	1-1	8-1	4-4	14-1	7-6
22	8 05-5	8 06-8	7 43-4	2-2	1-2	8-2	4-4	14-2	7-7
23	8 05-8	8 07-1	7 43-6	2-3	1-2	8-3	4-5	14-3	7-7
24	8 06-0	8 07-3	7 43-9	2-4	1-3	8-4	4-6	14-4	7-8
25	8 06-3	8 07-6	7 44-1	2-5	1-4	8-5	4-6	14-5	7-9
26	8 06-5	8 07-8	7 44-3	2-6	1-4	8-6	4-7	14-6	7-9
27	8 06-8	8 08-1	7 44-6	2-7	1-5	8-7	4-7	14-7	8-0
28	8 07-0	8 08-3	7 44-8	2-8	1-5	8-8	4-8	14-8	8-0
29	8 07-3	8 08-6	7 45-1	2-9	1-6	8-9	4-8	14-9	8-1
30	8 07-5	8 08-8	7 45-3	3-0	1-6	9-0	4-9	15-0	8-1
31	8 07-8	8 09-1	7 45-5	3-1	1-7	9-1	4-9	15-1	8-2
32	8 08-0	8 09-3	7 45-8	3-2	1-7	9-2	5-0	15-2	8-2
33	8 08-3	8 09-6	7 46-0	3-3	1-8	9-3	5-0	15-3	8-3
34	8 08-5	8 09-8	7 46-2	3-4	1-8	9-4	5-1	15-4	8-3
35	8 08-8	8 10-1	7 46-5	3-5	1-9	9-5	5-1	15-5	8-4
36	8 09-0	8 10-3	7 46-7	3-6	2-0	9-6	5-2	15-6	8-5
37	8 09-3	8 10-6	7 47-0	3-7	2-0	9-7	5-3	15-7	8-5
38	8 09-5	8 10-8	7 47-2	3-8	2-1	9-8	5-3	15-8	8-6
39	8 09-8	8 11-1	7 47-4	3-9	2-1	9-9	5-4	15-9	8-6
40	8 10-0	8 11-3	7 47-7	4-0	2-2	10-0	5-4	16-0	8-7
41	8 10-3	8 11-6	7 47-9	4-1	2-2	10-1	5-5	16-1	8-7
42	8 10-5	8 11-8	7 48-2	4-2	2-3	10-2	5-5	16-2	8-8
43	8 10-8	8 12-1	7 48-4	4-3	2-3	10-3	5-6	16-3	8-8
44	8 11-0	8 12-3	7 48-6	4-4	2-4	10-4	5-6	16-4	8-9
45	8 11-3	8 12-6	7 48-9	4-5	2-4	10-5	5-7	16-5	8-9
46	8 11-5	8 12-8	7 49-1	4-6	2-5	10-6	5-7	16-6	9-0
47	8 11-8	8 13-1	7 49-3	4-7	2-5	10-7	5-8	16-7	9-0
48	8 12-0	8 13-3	7 49-6	4-8	2-6	10-8	5-9	16-8	9-1
49	8 12-3	8 13-6	7 49-8	4-9	2-7	10-9	5-9	16-9	9-2
50	8 12-5	8 13-8	7 50-1	5-0	2-7	11-0	6-0	17-0	9-2
51	8 12-8	8 14-1	7 50-3	5-1	2-8	11-1	6-0	17-1	9-3
52	8 13-0	8 14-3	7 50-5	5-2	2-8	11-2	6-1	17-2	9-3
53	8 13-3	8 14-6	7 50-8	5-3	2-9	11-3	6-1	17-3	9-4
54	8 13-5	8 14-9	7 51-0	5-4	2-9	11-4	6-2	17-4	9-4
55	8 13-8	8 15-1	7 51-3	5-5	3-0	11-5	6-2	17-5	9-5
56	8 14-0	8 15-4	7 51-5	5-6	3-0	11-6	6-3	17-6	9-5
57	8 14-3	8 15-6	7 51-7	5-7	3-1	11-7	6-3	17-7	9-6
58	8 14-5	8 15-9	7 52-0	5-8	3-1	11-8	6-4	17-8	9-6
59	8 14-8	8 16-1	7 52-2	5-9	3-2	11-9	6-4	17-9	9-7
60	8 15-0	8 16-4	7 52-5	6-0	3-3	12-0	6-5	18-0	9-8

^m 33	SUN PLANETS	ARIES	MOON	ν or d	Corr ⁿ	ν or d	Corr ⁿ	ν or d	Corr ⁿ
s	o	/	o	/	/	/	/	/	/
00	8 15-0	8 16-4	7 52-5	0-0	0-0	6-0	3-4	12-0	6-7
01	8 15-3	8 16-6	7 52-7	0-1	0-1	6-1	3-4	12-1	6-8
02	8 15-5	8 16-9	7 52-9	0-2	0-1	6-2	3-5	12-2	6-8
03	8 15-8	8 17-1	7 53-2	0-3	0-2	6-3	3-5	12-3	6-9
04	8 16-0	8 17-4	7 53-4	0-4	0-2	6-4	3-6	12-4	6-9
05	8 16-3	8 17-6	7 53-6	0-5	0-3	6-5	3-6	12-5	7-0
06	8 16-5	8 17-9	7 53-9	0-6	0-3	6-6	3-7	12-6	7-0
07	8 16-8	8 18-1	7 54-1	0-7	0-4	6-7	3-7	12-7	7-1
08	8 17-0	8 18-4	7 54-4	0-8	0-4	6-8	3-8	12-8	7-1
09	8 17-3	8 18-6	7 54-6	0-9	0-5	6-9	3-9	12-9	7-2
10	8 17-5	8 18-9	7 54-8	1-0	0-6	7-0	3-9	13-0	7-3
11	8 17-8	8 19-1	7 55-1	1-1	0-6	7-1	4-0	13-1	7-3
12	8 18-0	8 19-4	7 55-3	1-2	0-7	7-2	4-0	13-2	7-4
13	8 18-3	8 19-6	7 55-6	1-3	0-7	7-3	4-1	13-3	7-4
14	8 18-5	8 19-9	7 55-8	1-4	0-8	7-4	4-1	13-4	7-5
15	8 18-8	8 20-1	7 56-0	1-5	0-8	7-5	4-2	13-5	7-5
16	8 19-0	8 20-4	7 56-3	1-6	0-9	7-6	4-2	13-6	7-6
17	8 19-3	8 20-6	7 56-5	1-7	0-9	7-7	4-3	13-7	7-6
18	8 19-5	8 20-9	7 56-7	1-8	1-0	7-8	4-4	13-8	7-7
19	8 19-8	8 21-1	7 57-0	1-9	1-1	7-9	4-4	13-9	7-8
20	8 20-0	8 21-4	7 57-2	2-0	1-1	8-0	4-5	14-0	7-8
21	8 20-3	8 21-6	7 57-5	2-1	1-2	8-1	4-5	14-1	7-9
22	8 20-5	8 21-9	7 57-7	2-2	1-2	8-2	4-6	14-2	7-9
23	8 20-8	8 22-1	7 57-9	2-3	1-3	8-3	4-6	14-3	8-0
24	8 21-0	8 22-4	7 58-2	2-4	1-3	8-4	4-7	14-4	8-0
25	8 21-3	8 22-6	7 58-4	2-5	1-4	8-5	4-7	14-5	8-1
26	8 21-5	8 22-9	7 58-7	2-6	1-5	8-6	4-8	14-6	8-2
27	8 21-8	8 23-1	7 58-9	2-7	1-5	8-7	4-9	14-7	8-2
28	8 22-0	8 23-4	7 59-1	2-8	1-6	8-8	4-9	14-8	8-3
29	8 22-3	8 23-6	7 59-4	2-9	1-6	8-9	5-0	14-9	8-3
30	8 22-5	8 23-9	7 59-6	3-0	1-7	9-0	5-0	15-0	8-4
31	8 22-8	8 24-1	7 59-8	3-1	1-7	9-1	5-1	15-1	8-4
32	8 23-0	8 24-4	8 00-1	3-2	1-8	9-2	5-1	15-2	8-5
33	8 23-3	8 24-6	8 00-3	3-3	1-8	9-3	5-2	15-3	8-5
34	8 23-5	8 24-9	8 00-6	3-4	1-9	9-4	5-2	15-4	8-6
35	8 23-8	8 25-1	8 00-8	3-5	2-0	9-5	5-3	15-5	8-7
36	8 24-0	8 25-4	8 01-0	3-6	2-0	9-6	5-4	15-6	8-7
37	8 24-3	8 25-6	8 01-3	3-7	2-1	9-7	5-4	15-7	8-8
38	8 24-5	8 25-9	8 01-5	3-8	2-1	9-8	5-5	15-8	8-8
39	8 24-8	8 26-1	8 01-8	3-9	2-2	9-9	5-5	15-9	8-9
40	8 25-0	8 26-4	8 02-0	4-0	2-2	10-0	5-6	16-0	8-9
41	8 25-3	8 26-6	8 02-2	4-1	2-3	10-1	5-6	16-1	9-0
42	8 25-5	8 26-9	8 02-5	4-2	2-3	10-2	5-7	16-2	9-0
43	8 25-8	8 27-1	8 02-7	4-3	2-4	10-3	5-8	16-3	9-1
44	8 26-0	8 27-4	8 02-9	4-4	2-5	10-4	5-8	16-4	9-2
45	8 26-3	8 27-6	8 03-2	4-5	2-5	10-5	5-9	16-5	9-2
46	8 26-5	8 27-9	8 03-4	4-6	2-6	10-6	5-9	16-6	9-3
47	8 26-8	8 28-1	8 03-7	4-7	2-6	10-7	6-0	16-7	9-3
48	8 27-0	8 28-4	8 03-9	4-8	2-7	10-8	6-0	16-8	9-4
49	8 27-3	8 28-6	8 04-1	4-9	2-7	10-9	6-1	16-9	9-4
50	8 27-5	8 28-9	8 04-4	5-0	2-8	11-0	6-1	17-0	9-5
51	8 27-8	8 29-1	8 04-6	5-1	2-8	11-1	6-2	17-1	9-5
52	8 28-0	8 29-4	8 04-9	5-2	2-9	11-2	6-3	17-2	9-6
53	8 28-3	8 29-6	8 05-1	5-3	3-0	11-3	6-3	17-3	9-7
54	8 28-5	8 29-9	8 05-3	5-4	3-0	11-4	6-4	17-4	9-7
55	8 28-8	8 30-1	8 05-6	5-5	3-1	11-5	6-4	17-5	9-8
56	8 29-0	8 30-4	8 05-8	5-6	3-1	11-6	6-5	17-6	9-8
57	8 29-3	8 30-6	8 06-1	5-7	3-2	11-7	6-5	17-7	9-9
58	8 29-5	8 30-9	8 06-3	5-8	3-2	11-8	6-6	17-8	9-9
59	8 29-8	8 31-1	8 06-5	5-9	3-3	11-9	6-6	17-9	10-0
60	8 30-0	8 31-4	8 06-8	6-0	3-4	12-0	6-7	18-0	10-1

34 ^m	SUN PLANETS	ARIES	MOON	v or d	Corr ⁿ	v or d	Corr ⁿ	v or d	Corr ⁿ
s	° ' "	° ' "	° ' "	' "	' "	' "	' "	' "	' "
00	8 30-0	8 31-4	8 06-8	0-0	0-0	6-0	3-5	12-0	6-9
01	8 30-3	8 31-6	8 07-0	0-1	0-1	6-1	3-5	12-1	7-0
02	8 30-5	8 31-9	8 07-2	0-2	0-1	6-2	3-6	12-2	7-0
03	8 30-8	8 32-1	8 07-5	0-3	0-2	6-3	3-6	12-3	7-1
04	8 31-0	8 32-4	8 07-7	0-4	0-2	6-4	3-7	12-4	7-1
05	8 31-3	8 32-6	8 08-0	0-5	0-3	6-5	3-7	12-5	7-2
06	8 31-5	8 32-9	8 08-2	0-6	0-3	6-6	3-8	12-6	7-2
07	8 31-8	8 33-2	8 08-4	0-7	0-4	6-7	3-9	12-7	7-3
08	8 32-0	8 33-4	8 08-7	0-8	0-5	6-8	3-9	12-8	7-4
09	8 32-3	8 33-7	8 08-9	0-9	0-5	6-9	4-0	12-9	7-4
10	8 32-5	8 33-9	8 09-2	1-0	0-6	7-0	4-0	13-0	7-5
11	8 32-8	8 34-2	8 09-4	1-1	0-6	7-1	4-1	13-1	7-5
12	8 33-0	8 34-4	8 09-6	1-2	0-7	7-2	4-1	13-2	7-6
13	8 33-3	8 34-7	8 09-9	1-3	0-7	7-3	4-2	13-3	7-6
14	8 33-5	8 34-9	8 10-1	1-4	0-8	7-4	4-3	13-4	7-7
15	8 33-8	8 35-2	8 10-3	1-5	0-9	7-5	4-3	13-5	7-8
16	8 34-0	8 35-4	8 10-6	1-6	0-9	7-6	4-4	13-6	7-8
17	8 34-3	8 35-7	8 10-8	1-7	1-0	7-7	4-4	13-7	7-9
18	8 34-5	8 35-9	8 11-1	1-8	1-0	7-8	4-5	13-8	7-9
19	8 34-8	8 36-2	8 11-3	1-9	1-1	7-9	4-5	13-9	8-0
20	8 35-0	8 36-4	8 11-5	2-0	1-2	8-0	4-6	14-0	8-1
21	8 35-3	8 36-7	8 11-8	2-1	1-2	8-1	4-7	14-1	8-1
22	8 35-5	8 36-9	8 12-0	2-2	1-3	8-2	4-7	14-2	8-2
23	8 35-8	8 37-2	8 12-3	2-3	1-3	8-3	4-8	14-3	8-2
24	8 36-0	8 37-4	8 12-5	2-4	1-4	8-4	4-8	14-4	8-3
25	8 36-3	8 37-7	8 12-7	2-5	1-4	8-5	4-9	14-5	8-3
26	8 36-5	8 37-9	8 13-0	2-6	1-5	8-6	4-9	14-6	8-4
27	8 36-8	8 38-2	8 13-2	2-7	1-6	8-7	5-0	14-7	8-5
28	8 37-0	8 38-4	8 13-4	2-8	1-6	8-8	5-1	14-8	8-5
29	8 37-3	8 38-7	8 13-7	2-9	1-7	8-9	5-1	14-9	8-6
30	8 37-5	8 38-9	8 13-9	3-0	1-7	9-0	5-2	15-0	8-6
31	8 37-8	8 39-2	8 14-2	3-1	1-8	9-1	5-2	15-1	8-7
32	8 38-0	8 39-4	8 14-4	3-2	1-8	9-2	5-3	15-2	8-7
33	8 38-3	8 39-7	8 14-6	3-3	1-9	9-3	5-3	15-3	8-8
34	8 38-5	8 39-9	8 14-9	3-4	2-0	9-4	5-4	15-4	8-9
35	8 38-8	8 40-2	8 15-1	3-5	2-0	9-5	5-5	15-5	8-9
36	8 39-0	8 40-4	8 15-4	3-6	2-1	9-6	5-5	15-6	9-0
37	8 39-3	8 40-7	8 15-6	3-7	2-1	9-7	5-6	15-7	9-0
38	8 39-5	8 40-9	8 15-8	3-8	2-2	9-8	5-6	15-8	9-1
39	8 39-8	8 41-2	8 16-1	3-9	2-2	9-9	5-7	15-9	9-1
40	8 40-0	8 41-4	8 16-3	4-0	2-3	10-0	5-8	16-0	9-2
41	8 40-3	8 41-7	8 16-5	4-1	2-4	10-1	5-8	16-1	9-3
42	8 40-5	8 41-9	8 16-8	4-2	2-4	10-2	5-9	16-2	9-3
43	8 40-8	8 42-2	8 17-0	4-3	2-5	10-3	5-9	16-3	9-4
44	8 41-0	8 42-4	8 17-3	4-4	2-5	10-4	6-0	16-4	9-4
45	8 41-3	8 42-7	8 17-5	4-5	2-6	10-5	6-0	16-5	9-5
46	8 41-5	8 42-9	8 17-7	4-6	2-6	10-6	6-1	16-6	9-5
47	8 41-8	8 43-2	8 18-0	4-7	2-7	10-7	6-2	16-7	9-6
48	8 42-0	8 43-4	8 18-2	4-8	2-8	10-8	6-2	16-8	9-7
49	8 42-3	8 43-7	8 18-5	4-9	2-8	10-9	6-3	16-9	9-7
50	8 42-5	8 43-9	8 18-7	5-0	2-9	11-0	6-3	17-0	9-8
51	8 42-8	8 44-2	8 18-9	5-1	2-9	11-1	6-4	17-1	9-8
52	8 43-0	8 44-4	8 19-2	5-2	3-0	11-2	6-4	17-2	9-9
53	8 43-3	8 44-7	8 19-4	5-3	3-0	11-3	6-5	17-3	9-9
54	8 43-5	8 44-9	8 19-7	5-4	3-1	11-4	6-6	17-4	10-0
55	8 43-8	8 45-2	8 19-9	5-5	3-2	11-5	6-6	17-5	10-1
56	8 44-0	8 45-4	8 20-1	5-6	3-2	11-6	6-7	17-6	10-1
57	8 44-3	8 45-7	8 20-4	5-7	3-3	11-7	6-7	17-7	10-2
58	8 44-5	8 45-9	8 20-6	5-8	3-3	11-8	6-8	17-8	10-2
59	8 44-8	8 46-2	8 20-8	5-9	3-4	11-9	6-8	17-9	10-3
60	8 45-0	8 46-4	8 21-1	6-0	3-5	12-0	6-9	18-0	10-4

35 ^m	SUN PLANETS	ARIES	MOON	v or d	Corr ⁿ	v or d	Corr ⁿ	v or d	Corr ⁿ
s	° ' "	° ' "	° ' "	' "	' "	' "	' "	' "	' "
00	8 45-0	8 46-4	8 21-1	0-0	0-0	6-0	3-6	12-0	7-1
01	8 45-3	8 46-7	8 21-3	0-1	0-1	6-1	3-6	12-1	7-2
02	8 45-5	8 46-9	8 21-6	0-2	0-1	6-2	3-7	12-2	7-2
03	8 45-8	8 47-2	8 21-8	0-3	0-2	6-3	3-7	12-3	7-3
04	8 46-0	8 47-4	8 22-0	0-4	0-2	6-4	3-8	12-4	7-3
05	8 46-3	8 47-7	8 22-3	0-5	0-3	6-5	3-8	12-5	7-4
06	8 46-5	8 47-9	8 22-5	0-6	0-4	6-6	3-9	12-6	7-5
07	8 46-8	8 48-2	8 22-8	0-7	0-4	6-7	4-0	12-7	7-5
08	8 47-0	8 48-4	8 23-0	0-8	0-5	6-8	4-0	12-8	7-6
09	8 47-3	8 48-7	8 23-2	0-9	0-5	6-9	4-1	12-9	7-6
10	8 47-5	8 48-9	8 23-5	1-0	0-6	7-0	4-1	13-0	7-7
11	8 47-8	8 49-2	8 23-7	1-1	0-7	7-1	4-2	13-1	7-8
12	8 48-0	8 49-4	8 23-9	1-2	0-7	7-2	4-3	13-2	7-8
13	8 48-3	8 49-7	8 24-2	1-3	0-8	7-3	4-3	13-3	7-9
14	8 48-5	8 49-9	8 24-4	1-4	0-8	7-4	4-4	13-4	7-9
15	8 48-8	8 50-2	8 24-7	1-5	0-9	7-5	4-4	13-5	8-0
16	8 49-0	8 50-4	8 24-9	1-6	0-9	7-6	4-5	13-6	8-0
17	8 49-3	8 50-7	8 25-1	1-7	1-0	7-7	4-6	13-7	8-1
18	8 49-5	8 50-9	8 25-4	1-8	1-1	7-8	4-6	13-8	8-2
19	8 49-8	8 51-2	8 25-6	1-9	1-1	7-9	4-7	13-9	8-2
20	8 50-0	8 51-5	8 25-9	2-0	1-2	8-0	4-7	14-0	8-3
21	8 50-3	8 51-7	8 26-1	2-1	1-2	8-1	4-8	14-1	8-3
22	8 50-5	8 52-0	8 26-3	2-2	1-3	8-2	4-9	14-2	8-4
23	8 50-8	8 52-2	8 26-6	2-3	1-4	8-3	4-9	14-3	8-5
24	8 51-0	8 52-5	8 26-8	2-4	1-4	8-4	5-0	14-4	8-5
25	8 51-3	8 52-7	8 27-0	2-5	1-5	8-5	5-0	14-5	8-6
26	8 51-5	8 53-0	8 27-3	2-6	1-5	8-6	5-1	14-6	8-6
27	8 51-8	8 53-2	8 27-5	2-7	1-6	8-7	5-1	14-7	8-7
28	8 52-0	8 53-5	8 27-8	2-8	1-7	8-8	5-2	14-8	8-8
29	8 52-3	8 53-7	8 28-0	2-9	1-7	8-9	5-3	14-9	8-8
30	8 52-5	8 54-0	8 28-2	3-0	1-8	9-0	5-3	15-0	8-9
31	8 52-8	8 54-2	8 28-5	3-1	1-8	9-1	5-4	15-1	8-9
32	8 53-0	8 54-5	8 28-7	3-2	1-9	9-2	5-4	15-2	9-0
33	8 53-3	8 54-7	8 29-0	3-3	2-0	9-3	5-5	15-3	9-1
34	8 53-5	8 55-0	8 29-2	3-4	2-0	9-4	5-6	15-4	9-1
35	8 53-8	8 55-2	8 29-4	3-5	2-1	9-5	5-6	15-5	9-2
36	8 54-0	8 55-5	8 29-7	3-6	2-1	9-6	5-7	15-6	9-2
37	8 54-3	8 55-7	8 29-9	3-7	2-2	9-7	5-7	15-7	9-3
38	8 54-5	8 56-0	8 30-2	3-8	2-2	9-8	5-8	15-8	9-3
39	8 54-8	8 56-2	8 30-4	3-9	2-3	9-9	5-9	15-9	9-4
40	8 55-0	8 56-5	8 30-6	4-0	2-4	10-0	5-9	16-0	9-5
41	8 55-3	8 56-7	8 30-9	4-1	2-4	10-1	6-0	16-1	9-5
42	8 55-5	8 57-0	8 31-1	4-2	2-5	10-2	6-0	16-2	9-6
43	8 55-8	8 57-2	8 31-3	4-3	2-5	10-3	6-1	16-3	9-6
44	8 56-0	8 57-5	8 31-6	4-4	2-6	10-4	6-2	16-4	9-7
45	8 56-3	8 57-7	8 31-8	4-5	2-7	10-5	6-2	16-5	9-8
46	8 56-5	8 58-0	8 32-1	4-6	2-7	10-6	6-3	16-6	9-8
47	8 56-8	8 58-2	8 32-3	4-7	2-8	10-7	6-3	16-7	9-9
48	8 57-0	8 58-5	8 32-5	4-8	2-8	10-8	6-4	16-8	9-9
49	8 57-3	8 58-7	8 32-8	4-9	2-9	10-9	6-4	16-9	10-0
50	8 57-5	8 59-0	8 33-0	5-0	3-0	11-0	6-5	17-0	10-1
51	8 57-8	8 59-2	8 33-3	5-1	3-0	11-1	6-6	17-1	10-1
52	8 58-0	8 59-5	8 33-5	5-2	3-1	11-2	6-6	17-2	10-2
53	8 58-3	8 59-7	8 33-7	5-3	3-1	11-3	6-7	17-3	10-2
54	8 58-5	9 00-0	8 34-0	5-4	3-2	11-4	6-7	17-4	10-3
55	8 58-8	9 00-2	8 34-2	5-5	3-3	11-5	6-8	17-5	10-4
56	8 59-0	9 00-5	8 34-4	5-6	3-3	11-6	6-9	17-6	10-4
57	8 59-3	9 00-7	8 34-7	5-7	3-4	11-7	6-9	17-7	10-5
58	8 59-5	9 01-0	8 34-9	5-8	3-4	11-8	7-0	17-8	10-5
59	8 59-8	9 01-2	8 35-2	5-9	3-5	11-9	7-0	17-9	10-6
60	9 00-0	9 01-5	8 35-4	6-0	3-6	12-0	7-1	18-0	10-7

36 ^m	SUN PLANETS	ARIES	MOON	ν or d	Corr ⁿ	ν or d	Corr ⁿ	ν or d	Corr ⁿ
s	o	o	o	o	o	o	o	o	o
00	9 00-0	9 01-5	8 35-4	0-0	0-0	6-0	3-7	12-0	7-3
01	9 00-3	9 01-7	8 35-6	0-1	0-1	6-1	3-7	12-1	7-4
02	9 00-5	9 02-0	8 35-9	0-2	0-1	6-2	3-8	12-2	7-4
03	9 00-8	9 02-2	8 36-1	0-3	0-2	6-3	3-8	12-3	7-5
04	9 01-0	9 02-5	8 36-4	0-4	0-2	6-4	3-9	12-4	7-5
05	9 01-3	9 02-7	8 36-6	0-5	0-3	6-5	4-0	12-5	7-6
06	9 01-5	9 03-0	8 36-8	0-6	0-4	6-6	4-0	12-6	7-7
07	9 01-8	9 03-2	8 37-1	0-7	0-4	6-7	4-1	12-7	7-7
08	9 02-0	9 03-5	8 37-3	0-8	0-5	6-8	4-1	12-8	7-8
09	9 02-3	9 03-7	8 37-5	0-9	0-5	6-9	4-2	12-9	7-8
10	9 02-5	9 04-0	8 37-8	1-0	0-6	7-0	4-3	13-0	7-9
11	9 02-8	9 04-2	8 38-0	1-1	0-7	7-1	4-3	13-1	8-0
12	9 03-0	9 04-5	8 38-3	1-2	0-7	7-2	4-4	13-2	8-0
13	9 03-3	9 04-7	8 38-5	1-3	0-8	7-3	4-4	13-3	8-1
14	9 03-5	9 05-0	8 38-7	1-4	0-9	7-4	4-5	13-4	8-2
15	9 03-8	9 05-2	8 39-0	1-5	0-9	7-5	4-6	13-5	8-2
16	9 04-0	9 05-5	8 39-2	1-6	1-0	7-6	4-6	13-6	8-3
17	9 04-3	9 05-7	8 39-5	1-7	1-0	7-7	4-7	13-7	8-3
18	9 04-5	9 06-0	8 39-7	1-8	1-1	7-8	4-7	13-8	8-4
19	9 04-8	9 06-2	8 39-9	1-9	1-2	7-9	4-8	13-9	8-5
20	9 05-0	9 06-5	8 40-2	2-0	1-2	8-0	4-9	14-0	8-5
21	9 05-3	9 06-7	8 40-4	2-1	1-3	8-1	4-9	14-1	8-6
22	9 05-5	9 07-0	8 40-6	2-2	1-3	8-2	5-0	14-2	8-6
23	9 05-8	9 07-2	8 40-9	2-3	1-4	8-3	5-0	14-3	8-7
24	9 06-0	9 07-5	8 41-1	2-4	1-5	8-4	5-1	14-4	8-8
25	9 06-3	9 07-7	8 41-4	2-5	1-5	8-5	5-2	14-5	8-8
26	9 06-5	9 08-0	8 41-6	2-6	1-6	8-6	5-2	14-6	8-9
27	9 06-8	9 08-2	8 41-8	2-7	1-6	8-7	5-3	14-7	8-9
28	9 07-0	9 08-5	8 42-1	2-8	1-7	8-8	5-4	14-8	9-0
29	9 07-3	9 08-7	8 42-3	2-9	1-8	8-9	5-4	14-9	9-1
30	9 07-5	9 09-0	8 42-6	3-0	1-8	9-0	5-5	15-0	9-1
31	9 07-8	9 09-2	8 42-8	3-1	1-9	9-1	5-5	15-1	9-2
32	9 08-0	9 09-5	8 43-0	3-2	1-9	9-2	5-6	15-2	9-2
33	9 08-3	9 09-8	8 43-3	3-3	2-0	9-3	5-7	15-3	9-3
34	9 08-5	9 10-0	8 43-5	3-4	2-1	9-4	5-7	15-4	9-4
35	9 08-8	9 10-3	8 43-8	3-5	2-1	9-5	5-8	15-5	9-4
36	9 09-0	9 10-5	8 44-0	3-6	2-2	9-6	5-8	15-6	9-5
37	9 09-3	9 10-8	8 44-2	3-7	2-3	9-7	5-9	15-7	9-6
38	9 09-5	9 11-0	8 44-5	3-8	2-3	9-8	6-0	15-8	9-6
39	9 09-8	9 11-3	8 44-7	3-9	2-4	9-9	6-0	15-9	9-7
40	9 10-0	9 11-5	8 44-9	4-0	2-4	10-0	6-1	16-0	9-7
41	9 10-3	9 11-8	8 45-2	4-1	2-5	10-1	6-1	16-1	9-8
42	9 10-5	9 12-0	8 45-4	4-2	2-6	10-2	6-2	16-2	9-9
43	9 10-8	9 12-3	8 45-7	4-3	2-6	10-3	6-3	16-3	9-9
44	9 11-0	9 12-5	8 45-9	4-4	2-7	10-4	6-3	16-4	10-0
45	9 11-3	9 12-8	8 46-1	4-5	2-7	10-5	6-4	16-5	10-0
46	9 11-5	9 13-0	8 46-4	4-6	2-8	10-6	6-4	16-6	10-1
47	9 11-8	9 13-3	8 46-6	4-7	2-9	10-7	6-5	16-7	10-2
48	9 12-0	9 13-5	8 46-9	4-8	2-9	10-8	6-6	16-8	10-2
49	9 12-3	9 13-8	8 47-1	4-9	3-0	10-9	6-6	16-9	10-3
50	9 12-5	9 14-0	8 47-3	5-0	3-0	11-0	6-7	17-0	10-3
51	9 12-8	9 14-3	8 47-6	5-1	3-1	11-1	6-8	17-1	10-4
52	9 13-0	9 14-5	8 47-8	5-2	3-2	11-2	6-8	17-2	10-5
53	9 13-3	9 14-8	8 48-0	5-3	3-2	11-3	6-9	17-3	10-5
54	9 13-5	9 15-0	8 48-3	5-4	3-3	11-4	6-9	17-4	10-6
55	9 13-8	9 15-3	8 48-5	5-5	3-3	11-5	7-0	17-5	10-6
56	9 14-0	9 15-5	8 48-8	5-6	3-4	11-6	7-1	17-6	10-7
57	9 14-3	9 15-8	8 49-0	5-7	3-5	11-7	7-1	17-7	10-8
58	9 14-5	9 16-0	8 49-2	5-8	3-5	11-8	7-2	17-8	10-8
59	9 14-8	9 16-3	8 49-5	5-9	3-6	11-9	7-2	17-9	10-9
60	9 15-0	9 16-5	8 49-7	6-0	3-7	12-0	7-3	18-0	11-0

37 ^m	SUN PLANETS	ARIES	MOON	ν or d	Corr ⁿ	ν or d	Corr ⁿ	ν or d	Corr ⁿ
s	o	o	o	o	o	o	o	o	o
00	9 15-0	9 16-5	8 49-7	0-0	0-0	6-0	3-8	12-0	7-5
01	9 15-3	9 16-8	8 50-0	0-1	0-1	6-1	3-8	12-1	7-6
02	9 15-5	9 17-0	8 50-2	0-2	0-1	6-2	3-9	12-2	7-6
03	9 15-8	9 17-3	8 50-4	0-3	0-2	6-3	3-9	12-3	7-7
04	9 16-0	9 17-5	8 50-7	0-4	0-3	6-4	4-0	12-4	7-8
05	9 16-3	9 17-8	8 50-9	0-5	0-3	6-5	4-1	12-5	7-8
06	9 16-5	9 18-0	8 51-1	0-6	0-4	6-6	4-1	12-6	7-9
07	9 16-8	9 18-3	8 51-4	0-7	0-4	6-7	4-2	12-7	7-9
08	9 17-0	9 18-5	8 51-6	0-8	0-5	6-8	4-3	12-8	8-0
09	9 17-3	9 18-8	8 51-9	0-9	0-6	6-9	4-3	12-9	8-1
10	9 17-5	9 19-0	8 52-1	1-0	0-6	7-0	4-4	13-0	8-1
11	9 17-8	9 19-3	8 52-3	1-1	0-7	7-1	4-4	13-1	8-2
12	9 18-0	9 19-5	8 52-6	1-2	0-8	7-2	4-5	13-2	8-3
13	9 18-3	9 19-8	8 52-8	1-3	0-8	7-3	4-6	13-3	8-3
14	9 18-5	9 20-0	8 53-1	1-4	0-9	7-4	4-6	13-4	8-4
15	9 18-8	9 20-3	8 53-3	1-5	0-9	7-5	4-7	13-5	8-4
16	9 19-0	9 20-5	8 53-5	1-6	1-0	7-6	4-8	13-6	8-5
17	9 19-3	9 20-8	8 53-8	1-7	1-1	7-7	4-8	13-7	8-6
18	9 19-5	9 21-0	8 54-0	1-8	1-1	7-8	4-9	13-8	8-6
19	9 19-8	9 21-3	8 54-3	1-9	1-2	7-9	4-9	13-9	8-7
20	9 20-0	9 21-5	8 54-5	2-0	1-3	8-0	5-0	14-0	8-8
21	9 20-3	9 21-8	8 54-7	2-1	1-3	8-1	5-1	14-1	8-8
22	9 20-5	9 22-0	8 55-0	2-2	1-4	8-2	5-1	14-2	8-9
23	9 20-8	9 22-3	8 55-2	2-3	1-4	8-3	5-2	14-3	8-9
24	9 21-0	9 22-5	8 55-4	2-4	1-5	8-4	5-3	14-4	9-0
25	9 21-3	9 22-8	8 55-7	2-5	1-6	8-5	5-3	14-5	9-1
26	9 21-5	9 23-0	8 55-9	2-6	1-6	8-6	5-4	14-6	9-1
27	9 21-8	9 23-3	8 56-2	2-7	1-7	8-7	5-4	14-7	9-2
28	9 22-0	9 23-5	8 56-4	2-8	1-8	8-8	5-5	14-8	9-3
29	9 22-3	9 23-8	8 56-6	2-9	1-8	8-9	5-6	14-9	9-3
30	9 22-5	9 24-0	8 56-9	3-0	1-9	9-0	5-6	15-0	9-4
31	9 22-8	9 24-3	8 57-1	3-1	1-9	9-1	5-7	15-1	9-4
32	9 23-0	9 24-5	8 57-4	3-2	2-0	9-2	5-8	15-2	9-5
33	9 23-3	9 24-8	8 57-6	3-3	2-1	9-3	5-8	15-3	9-6
34	9 23-5	9 25-0	8 57-8	3-4	2-1	9-4	5-9	15-4	9-6
35	9 23-8	9 25-3	8 58-1	3-5	2-2	9-5	5-9	15-5	9-7
36	9 24-0	9 25-5	8 58-3	3-6	2-3	9-6	6-0	15-6	9-8
37	9 24-3	9 25-8	8 58-5	3-7	2-3	9-7	6-1	15-7	9-8
38	9 24-5	9 26-0	8 58-8	3-8	2-4	9-8	6-1	15-8	9-9
39	9 24-8	9 26-3	8 59-0	3-9	2-4	9-9	6-2	15-9	9-9
40	9 25-0	9 26-5	8 59-3	4-0	2-5	10-0	6-3	16-0	10-0
41	9 25-3	9 26-8	8 59-5	4-1	2-6	10-1	6-3	16-1	10-1
42	9 25-5	9 27-0	8 59-7	4-2	2-6	10-2	6-4	16-2	10-1
43	9 25-8	9 27-3	9 00-0	4-3	2-7	10-3	6-4	16-3	10-2
44	9 26-0	9 27-5	9 00-2	4-4	2-8	10-4	6-5	16-4	10-3
45	9 26-3	9 27-8	9 00-5	4-5	2-8	10-5	6-6	16-5	10-3
46	9 26-5	9 28-1	9 00-7	4-6	2-9	10-6	6-6	16-6	10-4
47	9 26-8	9 28-3	9 00-9	4-7	2-9	10-7	6-7	16-7	10-4
48	9 27-0	9 28-6	9 01-2	4-8	3-0	10-8	6-8	16-8	10-5
49	9 27-3	9 28-8	9 01-4	4-9	3-1	10-9	6-8	16-9	10-6
50	9 27-5	9 29-1	9 01-6	5-0	3-1	11-0	6-9	17-0	10-6
51	9 27-8	9 29-3	9 01-9	5-1	3-2	11-1	6-9	17-1	10-7
52	9 28-0	9 29-6	9 02-1	5-2	3-3	11-2	7-0	17-2	10-8
53	9 28-3	9 29-8	9 02-4	5-3	3-3	11-3	7-1	17-3	10-8
54	9 28-5	9 30-1	9 02-6	5-4	3-4	11-4	7-1	17-4	10-9
55	9 28-8	9 30-3	9 02-8	5-5	3-4	11-5	7-2	17-5	10-9
56	9 29-0	9 30-6	9 03-1	5-6	3-5	11-6	7-3	17-6	11-0
57	9 29-3	9 30-8	9 03-3	5-7	3-6	11-7	7-3	17-7	11-1
58	9 29-5	9 31-1	9 03-6	5-8	3-6	11-8	7-4	17-8	11-1
59	9 29-8	9 31-3	9 03-8	5-9	3-7	11-9	7-4	17-9	11-2
60	9 30-0	9 31-6	9 04-0	6-0	3-8	12-0	7-5	18-0	11-3

38 ^m	SUN PLANETS	ARIES	MOON	ν or d	Corr ⁿ	ν or d	Corr ⁿ	ν or d	Corr ⁿ
s	° /	° /	° /	/ /	/ /	/ /	/ /	/ /	/ /
00	9 30.0	9 31.6	9 04.0	0.0	0.0	6.0	3.9	12.0	7.7
01	9 30.3	9 31.8	9 04.3	0.1	0.1	6.1	3.9	12.1	7.8
02	9 30.5	9 32.1	9 04.5	0.2	0.1	6.2	4.0	12.2	7.8
03	9 30.8	9 32.3	9 04.7	0.3	0.2	6.3	4.0	12.3	7.9
04	9 31.0	9 32.6	9 05.0	0.4	0.3	6.4	4.1	12.4	8.0
05	9 31.3	9 32.8	9 05.2	0.5	0.3	6.5	4.2	12.5	8.0
06	9 31.5	9 33.1	9 05.5	0.6	0.4	6.6	4.2	12.6	8.1
07	9 31.8	9 33.3	9 05.7	0.7	0.4	6.7	4.3	12.7	8.1
08	9 32.0	9 33.6	9 05.9	0.8	0.5	6.8	4.4	12.8	8.2
09	9 32.3	9 33.8	9 06.2	0.9	0.6	6.9	4.4	12.9	8.3
10	9 32.5	9 34.1	9 06.4	1.0	0.6	7.0	4.5	13.0	8.3
11	9 32.8	9 34.3	9 06.7	1.1	0.7	7.1	4.6	13.1	8.4
12	9 33.0	9 34.6	9 06.9	1.2	0.8	7.2	4.6	13.2	8.5
13	9 33.3	9 34.8	9 07.1	1.3	0.8	7.3	4.7	13.3	8.5
14	9 33.5	9 35.1	9 07.4	1.4	0.9	7.4	4.7	13.4	8.6
15	9 33.8	9 35.3	9 07.6	1.5	1.0	7.5	4.8	13.5	8.7
16	9 34.0	9 35.6	9 07.9	1.6	1.0	7.6	4.9	13.6	8.7
17	9 34.3	9 35.8	9 08.1	1.7	1.1	7.7	4.9	13.7	8.8
18	9 34.5	9 36.1	9 08.3	1.8	1.2	7.8	5.0	13.8	8.9
19	9 34.8	9 36.3	9 08.6	1.9	1.2	7.9	5.1	13.9	8.9
20	9 35.0	9 36.6	9 08.8	2.0	1.3	8.0	5.1	14.0	9.0
21	9 35.3	9 36.8	9 09.0	2.1	1.3	8.1	5.2	14.1	9.0
22	9 35.5	9 37.1	9 09.3	2.2	1.4	8.2	5.3	14.2	9.1
23	9 35.8	9 37.3	9 09.5	2.3	1.5	8.3	5.3	14.3	9.2
24	9 36.0	9 37.6	9 09.8	2.4	1.5	8.4	5.4	14.4	9.2
25	9 36.3	9 37.8	9 10.0	2.5	1.6	8.5	5.5	14.5	9.3
26	9 36.5	9 38.1	9 10.2	2.6	1.7	8.6	5.5	14.6	9.4
27	9 36.8	9 38.3	9 10.5	2.7	1.7	8.7	5.6	14.7	9.4
28	9 37.0	9 38.6	9 10.7	2.8	1.8	8.8	5.6	14.8	9.5
29	9 37.3	9 38.8	9 11.0	2.9	1.9	8.9	5.7	14.9	9.6
30	9 37.5	9 39.1	9 11.2	3.0	1.9	9.0	5.8	15.0	9.6
31	9 37.8	9 39.3	9 11.4	3.1	2.0	9.1	5.8	15.1	9.7
32	9 38.0	9 39.6	9 11.7	3.2	2.1	9.2	5.9	15.2	9.8
33	9 38.3	9 39.8	9 11.9	3.3	2.1	9.3	6.0	15.3	9.8
34	9 38.5	9 40.1	9 12.1	3.4	2.2	9.4	6.0	15.4	9.9
35	9 38.8	9 40.3	9 12.4	3.5	2.2	9.5	6.1	15.5	9.9
36	9 39.0	9 40.6	9 12.6	3.6	2.3	9.6	6.2	15.6	10.0
37	9 39.3	9 40.8	9 12.9	3.7	2.4	9.7	6.2	15.7	10.1
38	9 39.5	9 41.1	9 13.1	3.8	2.4	9.8	6.3	15.8	10.1
39	9 39.8	9 41.3	9 13.3	3.9	2.5	9.9	6.4	15.9	10.2
40	9 40.0	9 41.6	9 13.6	4.0	2.6	10.0	6.4	16.0	10.3
41	9 40.3	9 41.8	9 13.8	4.1	2.6	10.1	6.5	16.1	10.3
42	9 40.5	9 42.1	9 14.1	4.2	2.7	10.2	6.5	16.2	10.4
43	9 40.8	9 42.3	9 14.3	4.3	2.8	10.3	6.6	16.3	10.5
44	9 41.0	9 42.6	9 14.5	4.4	2.8	10.4	6.7	16.4	10.5
45	9 41.3	9 42.8	9 14.8	4.5	2.9	10.5	6.7	16.5	10.6
46	9 41.5	9 43.1	9 15.0	4.6	3.0	10.6	6.8	16.6	10.7
47	9 41.8	9 43.3	9 15.2	4.7	3.0	10.7	6.9	16.7	10.7
48	9 42.0	9 43.6	9 15.5	4.8	3.1	10.8	6.9	16.8	10.8
49	9 42.3	9 43.8	9 15.7	4.9	3.1	10.9	7.0	16.9	10.8
50	9 42.5	9 44.1	9 16.0	5.0	3.2	11.0	7.1	17.0	10.9
51	9 42.8	9 44.3	9 16.2	5.1	3.3	11.1	7.1	17.1	11.0
52	9 43.0	9 44.6	9 16.4	5.2	3.3	11.2	7.2	17.2	11.0
53	9 43.3	9 44.8	9 16.7	5.3	3.4	11.3	7.3	17.3	11.1
54	9 43.5	9 45.1	9 16.9	5.4	3.5	11.4	7.3	17.4	11.2
55	9 43.8	9 45.3	9 17.2	5.5	3.5	11.5	7.4	17.5	11.2
56	9 44.0	9 45.6	9 17.4	5.6	3.6	11.6	7.4	17.6	11.3
57	9 44.3	9 45.8	9 17.6	5.7	3.7	11.7	7.5	17.7	11.4
58	9 44.5	9 46.1	9 17.9	5.8	3.7	11.8	7.6	17.8	11.4
59	9 44.8	9 46.4	9 18.1	5.9	3.8	11.9	7.6	17.9	11.5
60	9 45.0	9 46.6	9 18.4	6.0	3.9	12.0	7.7	18.0	11.6

39 ^m	SUN PLANETS	ARIES	MOON	ν or d	Corr ⁿ	ν or d	Corr ⁿ	ν or d	Corr ⁿ
s	° /	° /	° /	/ /	/ /	/ /	/ /	/ /	/ /
00	9 45.0	9 46.6	9 18.4	0.0	0.0	6.0	4.0	12.0	7.9
01	9 45.3	9 46.9	9 18.6	0.1	0.1	6.1	4.0	12.1	8.0
02	9 45.5	9 47.1	9 18.8	0.2	0.1	6.2	4.1	12.2	8.0
03	9 45.8	9 47.4	9 19.1	0.3	0.2	6.3	4.1	12.3	8.1
04	9 46.0	9 47.6	9 19.3	0.4	0.3	6.4	4.2	12.4	8.2
05	9 46.3	9 47.9	9 19.5	0.5	0.3	6.5	4.3	12.5	8.2
06	9 46.5	9 48.1	9 19.8	0.6	0.4	6.6	4.3	12.6	8.3
07	9 46.8	9 48.4	9 20.0	0.7	0.5	6.7	4.4	12.7	8.4
08	9 47.0	9 48.6	9 20.3	0.8	0.5	6.8	4.5	12.8	8.4
09	9 47.3	9 48.9	9 20.5	0.9	0.6	6.9	4.5	12.9	8.5
10	9 47.5	9 49.1	9 20.7	1.0	0.7	7.0	4.6	13.0	8.6
11	9 47.8	9 49.4	9 21.0	1.1	0.7	7.1	4.7	13.1	8.6
12	9 48.0	9 49.6	9 21.2	1.2	0.8	7.2	4.7	13.2	8.7
13	9 48.3	9 49.9	9 21.5	1.3	0.9	7.3	4.8	13.3	8.8
14	9 48.5	9 50.1	9 21.7	1.4	0.9	7.4	4.9	13.4	8.8
15	9 48.8	9 50.4	9 21.9	1.5	1.0	7.5	4.9	13.5	8.9
16	9 49.0	9 50.6	9 22.2	1.6	1.1	7.6	5.0	13.6	9.0
17	9 49.3	9 50.9	9 22.4	1.7	1.1	7.7	5.1	13.7	9.0
18	9 49.5	9 51.1	9 22.6	1.8	1.2	7.8	5.1	13.8	9.1
19	9 49.8	9 51.4	9 22.9	1.9	1.3	7.9	5.2	13.9	9.2
20	9 50.0	9 51.6	9 23.1	2.0	1.3	8.0	5.3	14.0	9.2
21	9 50.3	9 51.9	9 23.4	2.1	1.4	8.1	5.3	14.1	9.3
22	9 50.5	9 52.1	9 23.6	2.2	1.4	8.2	5.4	14.2	9.3
23	9 50.8	9 52.4	9 23.8	2.3	1.5	8.3	5.5	14.3	9.4
24	9 51.0	9 52.6	9 24.1	2.4	1.6	8.4	5.5	14.4	9.5
25	9 51.3	9 52.9	9 24.3	2.5	1.6	8.5	5.6	14.5	9.5
26	9 51.5	9 53.1	9 24.6	2.6	1.7	8.6	5.7	14.6	9.6
27	9 51.8	9 53.4	9 24.8	2.7	1.8	8.7	5.7	14.7	9.7
28	9 52.0	9 53.6	9 25.0	2.8	1.8	8.8	5.8	14.8	9.7
29	9 52.3	9 53.9	9 25.3	2.9	1.9	8.9	5.9	14.9	9.8
30	9 52.5	9 54.1	9 25.5	3.0	2.0	9.0	5.9	15.0	9.9
31	9 52.8	9 54.4	9 25.7	3.1	2.0	9.1	6.0	15.1	9.9
32	9 53.0	9 54.6	9 26.0	3.2	2.1	9.2	6.1	15.2	10.0
33	9 53.3	9 54.9	9 26.2	3.3	2.2	9.3	6.1	15.3	10.1
34	9 53.5	9 55.1	9 26.5	3.4	2.2	9.4	6.2	15.4	10.1
35	9 53.8	9 55.4	9 26.7	3.5	2.3	9.5	6.3	15.5	10.2
36	9 54.0	9 55.6	9 26.9	3.6	2.4	9.6	6.3	15.6	10.3
37	9 54.3	9 55.9	9 27.2	3.7	2.4	9.7	6.4	15.7	10.3
38	9 54.5	9 56.1	9 27.4	3.8	2.5	9.8	6.5	15.8	10.4
39	9 54.8	9 56.4	9 27.7	3.9	2.6	9.9	6.5	15.9	10.5
40	9 55.0	9 56.6	9 27.9	4.0	2.6	10.0	6.6	16.0	10.5
41	9 55.3	9 56.9	9 28.1	4.1	2.7	10.1	6.6	16.1	10.6
42	9 55.5	9 57.1	9 28.4	4.2	2.8	10.2	6.7	16.2	10.7
43	9 55.8	9 57.4	9 28.6	4.3	2.8	10.3	6.8	16.3	10.7
44	9 56.0	9 57.6	9 28.8	4.4	2.9	10.4	6.8	16.4	10.8
45	9 56.3	9 57.9	9 29.1	4.5	3.0	10.5	6.9	16.5	10.9
46	9 56.5	9 58.1	9 29.3	4.6	3.0	10.6	7.0	16.6	10.9
47	9 56.8	9 58.4	9 29.6	4.7	3.1	10.7	7.0	16.7	11.0
48	9 57.0	9 58.6	9 29.8	4.8	3.2	10.8	7.1	16.8	11.1
49	9 57.3	9 58.9	9 30.0	4.9	3.2	10.9	7.2	16.9	11.1
50	9 57.5	9 59.1	9 30.3	5.0	3.3	11.0	7.2	17.0	11.2
51	9 57.8	9 59.4	9 30.5	5.1	3.4	11.1	7.3	17.1	11.3
52	9 58.0	9 59.6	9 30.8	5.2	3.4	11.2	7.4	17.2	11.3
53	9 58.3	9 59.9	9 31.0	5.3	3.5	11.3	7.4	17.3	11.4
54	9 58.5	10 00.1	9 31.2	5.4	3.6	11.4	7.5	17.4	11.5
55	9 58.8	10 00.4	9 31.5	5.5	3.6	11.5	7.6	17.5	11.5
56	9 59.0	10 00.6	9 31.7	5.6	3.7	11.6	7.6	17.6	11.6
57	9 59.3	10 00.9	9 32.0	5.7	3.8	11.7	7.7	17.7	11.7
58	9 59.5	10 01.1	9 32.2	5.8	3.8	11.8	7.8	17.8	11.7
59	9 59.8	10 01.4	9 32.4	5.9	3.9	11.9	7.8	17.9	11.8
60	10 00.0	10 01.6	9 32.7	6.0	4.0	12.0	7.9	18.0	11.9

40 ^m	SUN PLANETS	ARIES	MOON	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ
s	o	i	o	i	o	i
00	10 00-0	10 01-6	9 32-7	0-0	0-0	6-0 4-1 12-0 8-1
01	10 00-3	10 01-9	9 32-9	0-1	0-1	6-1 4-1 12-1 8-2
02	10 00-5	10 02-1	9 33-1	0-2	0-1	6-2 4-2 12-2 8-2
03	10 00-8	10 02-4	9 33-4	0-3	0-2	6-3 4-3 12-3 8-3
04	10 01-0	10 02-6	9 33-6	0-4	0-3	6-4 4-3 12-4 8-4
05	10 01-3	10 02-9	9 33-9	0-5	0-3	6-5 4-4 12-5 8-4
06	10 01-5	10 03-1	9 34-1	0-6	0-4	6-6 4-5 12-6 8-5
07	10 01-8	10 03-4	9 34-3	0-7	0-5	6-7 4-5 12-7 8-6
08	10 02-0	10 03-6	9 34-6	0-8	0-5	6-8 4-6 12-8 8-6
09	10 02-3	10 03-9	9 34-8	0-9	0-6	6-9 4-7 12-9 8-7
10	10 02-5	10 04-1	9 35-1	1-0	0-7	7-0 4-7 13-0 8-8
11	10 02-8	10 04-4	9 35-3	1-1	0-7	7-1 4-8 13-1 8-9
12	10 03-0	10 04-7	9 35-5	1-2	0-8	7-2 4-9 13-2 8-9
13	10 03-3	10 04-9	9 35-8	1-3	0-9	7-3 4-9 13-3 9-0
14	10 03-5	10 05-2	9 36-0	1-4	0-9	7-4 5-0 13-4 9-0
15	10 03-8	10 05-4	9 36-2	1-5	1-0	7-5 5-1 13-5 9-1
16	10 04-0	10 05-7	9 36-5	1-6	1-1	7-6 5-1 13-6 9-2
17	10 04-3	10 05-9	9 36-7	1-7	1-1	7-7 5-2 13-7 9-2
18	10 04-5	10 06-2	9 37-0	1-8	1-2	7-8 5-3 13-8 9-3
19	10 04-8	10 06-4	9 37-2	1-9	1-3	7-9 5-3 13-9 9-4
20	10 05-0	10 06-7	9 37-4	2-0	1-4	8-0 5-4 14-0 9-5
21	10 05-3	10 06-9	9 37-7	2-1	1-4	8-1 5-5 14-1 9-5
22	10 05-5	10 07-2	9 37-9	2-2	1-5	8-2 5-5 14-2 9-6
23	10 05-8	10 07-4	9 38-2	2-3	1-6	8-3 5-6 14-3 9-7
24	10 06-0	10 07-7	9 38-4	2-4	1-6	8-4 5-7 14-4 9-7
25	10 06-3	10 07-9	9 38-6	2-5	1-7	8-5 5-7 14-5 9-8
26	10 06-5	10 08-2	9 38-9	2-6	1-8	8-6 5-8 14-6 9-9
27	10 06-8	10 08-4	9 39-1	2-7	1-8	8-7 5-9 14-7 9-9
28	10 07-0	10 08-7	9 39-3	2-8	1-9	8-8 5-9 14-8 10-0
29	10 07-3	10 08-9	9 39-6	2-9	2-0	8-9 6-0 14-9 10-1
30	10 07-5	10 09-2	9 39-8	3-0	2-0	9-0 6-1 15-0 10-1
31	10 07-8	10 09-4	9 40-1	3-1	2-1	9-1 6-1 15-1 10-2
32	10 08-0	10 09-7	9 40-3	3-2	2-2	9-2 6-2 15-2 10-3
33	10 08-3	10 09-9	9 40-5	3-3	2-2	9-3 6-3 15-3 10-3
34	10 08-5	10 10-2	9 40-8	3-4	2-3	9-4 6-3 15-4 10-4
35	10 08-8	10 10-4	9 41-0	3-5	2-4	9-5 6-4 15-5 10-5
36	10 09-0	10 10-7	9 41-3	3-6	2-4	9-6 6-5 15-6 10-5
37	10 09-3	10 10-9	9 41-5	3-7	2-5	9-7 6-5 15-7 10-6
38	10 09-5	10 11-2	9 41-7	3-8	2-6	9-8 6-6 15-8 10-7
39	10 09-8	10 11-4	9 42-0	3-9	2-6	9-9 6-7 15-9 10-7
40	10 10-0	10 11-7	9 42-2	4-0	2-7	10-0 6-8 16-0 10-8
41	10 10-3	10 11-9	9 42-4	4-1	2-8	10-1 6-8 16-1 10-9
42	10 10-5	10 12-2	9 42-7	4-2	2-8	10-2 6-9 16-2 10-9
43	10 10-8	10 12-4	9 42-9	4-3	2-9	10-3 7-0 16-3 11-0
44	10 11-0	10 12-7	9 43-2	4-4	3-0	10-4 7-0 16-4 11-1
45	10 11-3	10 12-9	9 43-4	4-5	3-0	10-5 7-1 16-5 11-1
46	10 11-5	10 13-2	9 43-6	4-6	3-1	10-6 7-2 16-6 11-2
47	10 11-8	10 13-4	9 43-9	4-7	3-2	10-7 7-2 16-7 11-3
48	10 12-0	10 13-7	9 44-1	4-8	3-2	10-8 7-3 16-8 11-3
49	10 12-3	10 13-9	9 44-4	4-9	3-3	10-9 7-4 16-9 11-4
50	10 12-5	10 14-2	9 44-6	5-0	3-4	11-0 7-4 17-0 11-5
51	10 12-8	10 14-4	9 44-8	5-1	3-4	11-1 7-5 17-1 11-5
52	10 13-0	10 14-7	9 45-1	5-2	3-5	11-2 7-6 17-2 11-6
53	10 13-3	10 14-9	9 45-3	5-3	3-6	11-3 7-6 17-3 11-7
54	10 13-5	10 15-2	9 45-6	5-4	3-6	11-4 7-7 17-4 11-7
55	10 13-8	10 15-4	9 45-8	5-5	3-7	11-5 7-8 17-5 11-8
56	10 14-0	10 15-7	9 46-0	5-6	3-8	11-6 7-8 17-6 11-9
57	10 14-3	10 15-9	9 46-3	5-7	3-8	11-7 7-9 17-7 11-9
58	10 14-5	10 16-2	9 46-5	5-8	3-9	11-8 8-0 17-8 12-0
59	10 14-8	10 16-4	9 46-7	5-9	4-0	11-9 8-0 17-9 12-1
60	10 15-0	10 16-7	9 47-0	6-0	4-1	12-0 8-1 18-0 12-2

41 ^m	SUN PLANETS	ARIES	MOON	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ
s	o	i	o	i	o	i
00	10 15-0	10 16-7	9 47-0	0-0	0-0	6-0 4-2 12-0 8-3
01	10 15-3	10 16-9	9 47-2	0-1	0-1	6-1 4-2 12-1 8-4
02	10 15-5	10 17-2	9 47-5	0-2	0-1	6-2 4-3 12-2 8-4
03	10 15-8	10 17-4	9 47-7	0-3	0-2	6-3 4-4 12-3 8-5
04	10 16-0	10 17-7	9 47-9	0-4	0-3	6-4 4-4 12-4 8-6
05	10 16-3	10 17-9	9 48-2	0-5	0-3	6-5 4-5 12-5 8-6
06	10 16-5	10 18-2	9 48-4	0-6	0-4	6-6 4-6 12-6 8-7
07	10 16-8	10 18-4	9 48-7	0-7	0-5	6-7 4-6 12-7 8-8
08	10 17-0	10 18-7	9 48-9	0-8	0-6	6-8 4-7 12-8 8-9
09	10 17-3	10 18-9	9 49-1	0-9	0-6	6-9 4-8 12-9 8-9
10	10 17-5	10 19-2	9 49-4	1-0	0-7	7-0 4-8 13-0 9-0
11	10 17-8	10 19-4	9 49-6	1-1	0-8	7-1 4-9 13-1 9-1
12	10 18-0	10 19-7	9 49-8	1-2	0-8	7-2 5-0 13-2 9-1
13	10 18-3	10 19-9	9 50-1	1-3	0-9	7-3 5-0 13-3 9-2
14	10 18-5	10 20-2	9 50-3	1-4	1-0	7-4 5-1 13-4 9-3
15	10 18-8	10 20-4	9 50-6	1-5	1-0	7-5 5-2 13-5 9-3
16	10 19-0	10 20-7	9 50-8	1-6	1-1	7-6 5-3 13-6 9-4
17	10 19-3	10 20-9	9 51-0	1-7	1-2	7-7 5-3 13-7 9-5
18	10 19-5	10 21-2	9 51-3	1-8	1-2	7-8 5-4 13-8 9-5
19	10 19-8	10 21-4	9 51-5	1-9	1-3	7-9 5-5 13-9 9-6
20	10 20-0	10 21-7	9 51-8	2-0	1-4	8-0 5-5 14-0 9-7
21	10 20-3	10 21-9	9 52-0	2-1	1-5	8-1 5-6 14-1 9-8
22	10 20-5	10 22-2	9 52-2	2-2	1-5	8-2 5-7 14-2 9-8
23	10 20-8	10 22-4	9 52-5	2-3	1-6	8-3 5-7 14-3 9-9
24	10 21-0	10 22-7	9 52-7	2-4	1-7	8-4 5-8 14-4 10-0
25	10 21-3	10 23-0	9 52-9	2-5	1-7	8-5 5-9 14-5 10-0
26	10 21-5	10 23-2	9 53-2	2-6	1-8	8-6 5-9 14-6 10-1
27	10 21-8	10 23-5	9 53-4	2-7	1-9	8-7 6-0 14-7 10-2
28	10 22-0	10 23-7	9 53-7	2-8	1-9	8-8 6-1 14-8 10-2
29	10 22-3	10 24-0	9 53-9	2-9	2-0	8-9 6-2 14-9 10-3
30	10 22-5	10 24-2	9 54-1	3-0	2-1	9-0 6-2 15-0 10-4
31	10 22-8	10 24-5	9 54-4	3-1	2-1	9-1 6-3 15-1 10-4
32	10 23-0	10 24-7	9 54-6	3-2	2-2	9-2 6-4 15-2 10-5
33	10 23-3	10 25-0	9 54-9	3-3	2-3	9-3 6-4 15-3 10-6
34	10 23-5	10 25-2	9 55-1	3-4	2-4	9-4 6-5 15-4 10-7
35	10 23-8	10 25-5	9 55-3	3-5	2-4	9-5 6-6 15-5 10-7
36	10 24-0	10 25-7	9 55-6	3-6	2-5	9-6 6-6 15-6 10-8
37	10 24-3	10 26-0	9 55-8	3-7	2-6	9-7 6-7 15-7 10-9
38	10 24-5	10 26-2	9 56-1	3-8	2-6	9-8 6-8 15-8 10-9
39	10 24-8	10 26-5	9 56-3	3-9	2-7	9-9 6-8 15-9 11-0
40	10 25-0	10 26-7	9 56-5	4-0	2-8	10-0 6-9 16-0 11-1
41	10 25-3	10 27-0	9 56-8	4-1	2-8	10-1 7-0 16-1 11-1
42	10 25-5	10 27-2	9 57-0	4-2	2-9	10-2 7-1 16-2 11-2
43	10 25-8	10 27-5	9 57-2	4-3	3-0	10-3 7-1 16-3 11-3
44	10 26-0	10 27-7	9 57-5	4-4	3-0	10-4 7-2 16-4 11-3
45	10 26-3	10 28-0	9 57-7	4-5	3-1	10-5 7-3 16-5 11-4
46	10 26-5	10 28-2	9 58-0	4-6	3-2	10-6 7-3 16-6 11-5
47	10 26-8	10 28-5	9 58-2	4-7	3-3	10-7 7-4 16-7 11-6
48	10 27-0	10 28-7	9 58-4	4-8	3-3	10-8 7-5 16-8 11-6
49	10 27-3	10 29-0	9 58-7	4-9	3-4	10-9 7-5 16-9 11-7
50	10 27-5	10 29-2	9 58-9	5-0	3-5	11-0 7-6 17-0 11-8
51	10 27-8	10 29-5	9 59-2	5-1	3-5	11-1 7-7 17-1 11-8
52	10 28-0	10 29-7	9 59-4	5-2	3-6	11-2 7-7 17-2 11-9
53	10 28-3	10 30-0	9 59-6	5-3	3-7	11-3 7-8 17-3 12-0
54	10 28-5	10 30-2	9 59-9	5-4	3-7	11-4 7-9 17-4 12-0
55	10 28-8	10 30-5	10 00-1	5-5	3-8	11-5 8-0 17-5 12-1
56	10 29-0	10 30-7	10 00-3	5-6	3-9	11-6 8-0 17-6 12-2
57	10 29-3	10 31-0	10 00-6	5-7	3-9	11-7 8-1 17-7 12-2
58	10 29-5	10 31-2	10 00-8	5-8	4-0	11-8 8-2 17-8 12-3
59	10 29-8	10 31-5	10 01-1	5-9	4-1	11-9 8-2 17-9 12-4
60	10 30-0	10 31-7	10 01-3	6-0	4-2	12-0 8-3 18-0 12-5

42 ^m	SUN PLANETS	ARIES	MOON	v or d	Corr ⁿ	v or d	Corr ⁿ	v or d	Corr ⁿ
s	o	i	o	i	i	i	i	i	i
00	10 30-0	10 31-7	10 01-3	0-0	0-0	6-0	4-3	12-0	8-5
01	10 30-3	10 32-0	10 01-5	0-1	0-1	6-1	4-3	12-1	8-6
02	10 30-5	10 32-2	10 01-8	0-2	0-1	6-2	4-4	12-2	8-6
03	10 30-8	10 32-5	10 02-0	0-3	0-2	6-3	4-5	12-3	8-7
04	10 31-0	10 32-7	10 02-3	0-4	0-3	6-4	4-5	12-4	8-8
05	10 31-3	10 33-0	10 02-5	0-5	0-4	6-5	4-6	12-5	8-9
06	10 31-5	10 33-2	10 02-7	0-6	0-4	6-6	4-7	12-6	8-9
07	10 31-8	10 33-5	10 03-0	0-7	0-5	6-7	4-7	12-7	9-0
08	10 32-0	10 33-7	10 03-2	0-8	0-6	6-8	4-8	12-8	9-1
09	10 32-3	10 34-0	10 03-4	0-9	0-6	6-9	4-9	12-9	9-1
10	10 32-5	10 34-2	10 03-7	1-0	0-7	7-0	5-0	13-0	9-2
11	10 32-8	10 34-5	10 03-9	1-1	0-8	7-1	5-0	13-1	9-3
12	10 33-0	10 34-7	10 04-2	1-2	0-9	7-2	5-1	13-2	9-4
13	10 33-3	10 35-0	10 04-4	1-3	0-9	7-3	5-2	13-3	9-4
14	10 33-5	10 35-2	10 04-6	1-4	1-0	7-4	5-2	13-4	9-5
15	10 33-8	10 35-5	10 04-9	1-5	1-1	7-5	5-3	13-5	9-6
16	10 34-0	10 35-7	10 05-1	1-6	1-1	7-6	5-4	13-6	9-6
17	10 34-3	10 36-0	10 05-4	1-7	1-2	7-7	5-5	13-7	9-7
18	10 34-5	10 36-2	10 05-6	1-8	1-3	7-8	5-5	13-8	9-8
19	10 34-8	10 36-5	10 05-8	1-9	1-3	7-9	5-6	13-9	9-8
20	10 35-0	10 36-7	10 06-1	2-0	1-4	8-0	5-7	14-0	9-9
21	10 35-3	10 37-0	10 06-3	2-1	1-5	8-1	5-7	14-1	10-0
22	10 35-5	10 37-2	10 06-5	2-2	1-6	8-2	5-8	14-2	10-1
23	10 35-8	10 37-5	10 06-8	2-3	1-6	8-3	5-9	14-3	10-1
24	10 36-0	10 37-7	10 07-0	2-4	1-7	8-4	6-0	14-4	10-2
25	10 36-3	10 38-0	10 07-3	2-5	1-8	8-5	6-0	14-5	10-3
26	10 36-5	10 38-2	10 07-5	2-6	1-8	8-6	6-1	14-6	10-3
27	10 36-8	10 38-5	10 07-7	2-7	1-9	8-7	6-2	14-7	10-4
28	10 37-0	10 38-7	10 08-0	2-8	2-0	8-8	6-2	14-8	10-5
29	10 37-3	10 39-0	10 08-2	2-9	2-1	8-9	6-3	14-9	10-6
30	10 37-5	10 39-2	10 08-5	3-0	2-1	9-0	6-4	15-0	10-6
31	10 37-8	10 39-5	10 08-7	3-1	2-2	9-1	6-4	15-1	10-7
32	10 38-0	10 39-7	10 08-9	3-2	2-3	9-2	6-5	15-2	10-8
33	10 38-3	10 40-0	10 09-2	3-3	2-3	9-3	6-6	15-3	10-8
34	10 38-5	10 40-2	10 09-4	3-4	2-4	9-4	6-7	15-4	10-9
35	10 38-8	10 40-5	10 09-7	3-5	2-5	9-5	6-7	15-5	11-0
36	10 39-0	10 40-7	10 09-9	3-6	2-6	9-6	6-8	15-6	11-1
37	10 39-3	10 41-0	10 10-1	3-7	2-6	9-7	6-9	15-7	11-1
38	10 39-5	10 41-3	10 10-4	3-8	2-7	9-8	6-9	15-8	11-2
39	10 39-8	10 41-5	10 10-6	3-9	2-8	9-9	7-0	15-9	11-3
40	10 40-0	10 41-8	10 10-8	4-0	2-8	10-0	7-1	16-0	11-3
41	10 40-3	10 42-0	10 11-1	4-1	2-9	10-1	7-2	16-1	11-4
42	10 40-5	10 42-3	10 11-3	4-2	3-0	10-2	7-2	16-2	11-5
43	10 40-8	10 42-5	10 11-6	4-3	3-0	10-3	7-3	16-3	11-5
44	10 41-0	10 42-8	10 11-8	4-4	3-1	10-4	7-4	16-4	11-6
45	10 41-3	10 43-0	10 12-0	4-5	3-2	10-5	7-4	16-5	11-7
46	10 41-5	10 43-3	10 12-3	4-6	3-3	10-6	7-5	16-6	11-8
47	10 41-8	10 43-5	10 12-5	4-7	3-3	10-7	7-6	16-7	11-8
48	10 42-0	10 43-8	10 12-8	4-8	3-4	10-8	7-7	16-8	11-9
49	10 42-3	10 44-0	10 13-0	4-9	3-5	10-9	7-7	16-9	12-0
50	10 42-5	10 44-3	10 13-2	5-0	3-5	11-0	7-8	17-0	12-0
51	10 42-8	10 44-5	10 13-5	5-1	3-6	11-1	7-9	17-1	12-1
52	10 43-0	10 44-8	10 13-7	5-2	3-7	11-2	7-9	17-2	12-2
53	10 43-3	10 45-0	10 13-9	5-3	3-8	11-3	8-0	17-3	12-3
54	10 43-5	10 45-3	10 14-2	5-4	3-8	11-4	8-1	17-4	12-3
55	10 43-8	10 45-5	10 14-4	5-5	3-9	11-5	8-1	17-5	12-4
56	10 44-0	10 45-8	10 14-7	5-6	4-0	11-6	8-2	17-6	12-5
57	10 44-3	10 46-0	10 14-9	5-7	4-0	11-7	8-3	17-7	12-5
58	10 44-5	10 46-3	10 15-1	5-8	4-1	11-8	8-4	17-8	12-6
59	10 44-8	10 46-5	10 15-4	5-9	4-2	11-9	8-4	17-9	12-7
60	10 45-0	10 46-8	10 15-6	6-0	4-3	12-0	8-5	18-0	12-8

43 ^m	SUN PLANETS	ARIES	MOON	v or d	Corr ⁿ	v or d	Corr ⁿ	v or d	Corr ⁿ
s	o	i	o	i	i	i	i	i	i
00	10 45-0	10 46-8	10 15-6	0-0	0-0	6-0	4-4	12-0	8-7
01	10 45-3	10 47-0	10 15-9	0-1	0-1	6-1	4-4	12-1	8-8
02	10 45-5	10 47-3	10 16-1	0-2	0-1	6-2	4-5	12-2	8-8
03	10 45-8	10 47-5	10 16-3	0-3	0-2	6-3	4-6	12-3	8-9
04	10 46-0	10 47-8	10 16-6	0-4	0-3	6-4	4-6	12-4	9-0
05	10 46-3	10 48-0	10 16-8	0-5	0-4	6-5	4-7	12-5	9-1
06	10 46-5	10 48-3	10 17-0	0-6	0-4	6-6	4-8	12-6	9-1
07	10 46-8	10 48-5	10 17-3	0-7	0-5	6-7	4-9	12-7	9-2
08	10 47-0	10 48-8	10 17-5	0-8	0-6	6-8	4-9	12-8	9-3
09	10 47-3	10 49-0	10 17-8	0-9	0-7	6-9	5-0	12-9	9-4
10	10 47-5	10 49-3	10 18-0	1-0	0-7	7-0	5-1	13-0	9-4
11	10 47-8	10 49-5	10 18-2	1-1	0-8	7-1	5-1	13-1	9-5
12	10 48-0	10 49-8	10 18-5	1-2	0-9	7-2	5-2	13-2	9-6
13	10 48-3	10 50-0	10 18-7	1-3	0-9	7-3	5-3	13-3	9-6
14	10 48-5	10 50-3	10 19-0	1-4	1-0	7-4	5-4	13-4	9-7
15	10 48-8	10 50-5	10 19-2	1-5	1-1	7-5	5-4	13-5	9-8
16	10 49-0	10 50-8	10 19-4	1-6	1-2	7-6	5-5	13-6	9-9
17	10 49-3	10 51-0	10 19-7	1-7	1-2	7-7	5-6	13-7	9-9
18	10 49-5	10 51-3	10 19-9	1-8	1-3	7-8	5-7	13-8	10-0
19	10 49-8	10 51-5	10 20-2	1-9	1-4	7-9	5-7	13-9	10-1
20	10 50-0	10 51-8	10 20-4	2-0	1-5	8-0	5-8	14-0	10-2
21	10 50-3	10 52-0	10 20-6	2-1	1-5	8-1	5-9	14-1	10-2
22	10 50-5	10 52-3	10 20-9	2-2	1-6	8-2	5-9	14-2	10-3
23	10 50-8	10 52-5	10 21-1	2-3	1-7	8-3	6-0	14-3	10-4
24	10 51-0	10 52-8	10 21-3	2-4	1-7	8-4	6-1	14-4	10-4
25	10 51-3	10 53-0	10 21-6	2-5	1-8	8-5	6-2	14-5	10-5
26	10 51-5	10 53-3	10 21-8	2-6	1-9	8-6	6-2	14-6	10-6
27	10 51-8	10 53-5	10 22-1	2-7	2-0	8-7	6-3	14-7	10-7
28	10 52-0	10 53-8	10 22-3	2-8	2-0	8-8	6-4	14-8	10-7
29	10 52-3	10 54-0	10 22-5	2-9	2-1	8-9	6-5	14-9	10-8
30	10 52-5	10 54-3	10 22-8	3-0	2-2	9-0	6-5	15-0	10-9
31	10 52-8	10 54-5	10 23-0	3-1	2-2	9-1	6-6	15-1	10-9
32	10 53-0	10 54-8	10 23-3	3-2	2-3	9-2	6-7	15-2	11-0
33	10 53-3	10 55-0	10 23-5	3-3	2-4	9-3	6-7	15-3	11-1
34	10 53-5	10 55-3	10 23-7	3-4	2-5	9-4	6-8	15-4	11-2
35	10 53-8	10 55-5	10 24-0	3-5	2-5	9-5	6-9	15-5	11-2
36	10 54-0	10 55-8	10 24-2	3-6	2-6	9-6	7-0	15-6	11-3
37	10 54-3	10 56-0	10 24-4	3-7	2-7	9-7	7-0	15-7	11-4
38	10 54-5	10 56-3	10 24-7	3-8	2-8	9-8	7-1	15-8	11-5
39	10 54-8	10 56-5	10 24-9	3-9	2-8	9-9	7-2	15-9	11-5
40	10 55-0	10 56-8	10 25-2	4-0	2-9	10-0	7-3	16-0	11-6
41	10 55-3	10 57-0	10 25-4	4-1	3-0	10-1	7-3	16-1	11-7
42	10 55-5	10 57-3	10 25-6	4-2	3-0	10-2	7-4	16-2	11-7
43	10 55-8	10 57-5	10 25-9	4-3	3-1	10-3	7-5	16-3	11-8
44	10 56-0	10 57-8	10 26-1	4-4	3-2	10-4	7-5	16-4	11-9
45	10 56-3	10 58-0	10 26-4	4-5	3-3	10-5	7-6	16-5	12-0
46	10 56-5	10 58-3	10 26-6	4-6	3-3	10-6	7-7	16-6	12-0
47	10 56-8	10 58-5	10 26-8	4-7	3-4	10-7	7-8	16-7	12-1
48	10 57-0	10 58-8	10 27-1	4-8	3-5	10-8	7-8	16-8	12-2
49	10 57-3	10 59-0	10 27-3	4-9	3-6	10-9	7-9	16-9	12-3
50	10 57-5	10 59-3	10 27-5	5-0	3-6	11-0	8-0	17-0	12-3
51	10 57-8	10 59-6	10 27-8	5-1	3-7	11-1	8-0	17-1	12-4
52	10 58-0	10 59-8	10 28-0	5-2	3-8	11-2	8-1	17-2	12-5
53	10 58-3	11 00-1	10 28-3	5-3	3-8	11-3	8-2	17-3	12-5
54	10 58-5	11 00-3	10 28-5	5-4	3-9	11-4	8-3	17-4	12-6
55	10 58-8	11 00-6	10 28-7	5-5	4-0	11-5	8-3	17-5	12-7
56	10 59-0	11 00-8	10 29-0	5-6	4-1	11-6	8-4	17-6	12-8
57	10 59-3	11 01-1	10 29-2	5-7	4-1	11-7	8-5	17-7	12-8
58	10 59-5	11 01-3	10 29-5	5-8	4-2	11-8	8-6	17-8	12-9
59	10 59-8	11 01-6	10 29-7	5-9	4-3	11-9	8-6	17-9	13-0
60	11 00-0	11 01-8	10 29-9	6-0	4-4	12-0	8-7	18-0	13-1

44 ^m	SUN PLANETS	ARIES	MOON	v or d	Corr ⁿ	v or d	Corr ⁿ	v or d	Corr ⁿ
s	o	i	o	i	i	i	i	i	i
00	11 00-0	11 01-8	10 29-9	0-0	0-0	6-0	4-5	12-0	8-9
01	11 00-3	11 02-1	10 30-2	0-1	0-1	6-1	4-5	12-1	9-0
02	11 00-5	11 02-3	10 30-4	0-2	0-1	6-2	4-6	12-2	9-0
03	11 00-8	11 02-6	10 30-6	0-3	0-2	6-3	4-7	12-3	9-1
04	11 01-0	11 02-8	10 30-9	0-4	0-3	6-4	4-7	12-4	9-2
05	11 01-3	11 03-1	10 31-1	0-5	0-4	6-5	4-8	12-5	9-3
06	11 01-5	11 03-3	10 31-4	0-6	0-4	6-6	4-9	12-6	9-3
07	11 01-8	11 03-6	10 31-6	0-7	0-5	6-7	5-0	12-7	9-4
08	11 02-0	11 03-8	10 31-8	0-8	0-6	6-8	5-0	12-8	9-5
09	11 02-3	11 04-1	10 32-1	0-9	0-7	6-9	5-1	12-9	9-6
10	11 02-5	11 04-3	10 32-3	1-0	0-7	7-0	5-2	13-0	9-6
11	11 02-8	11 04-6	10 32-6	1-1	0-8	7-1	5-3	13-1	9-7
12	11 03-0	11 04-8	10 32-8	1-2	0-9	7-2	5-3	13-2	9-8
13	11 03-3	11 05-1	10 33-0	1-3	1-0	7-3	5-4	13-3	9-9
14	11 03-5	11 05-3	10 33-3	1-4	1-0	7-4	5-5	13-4	9-9
15	11 03-8	11 05-6	10 33-5	1-5	1-1	7-5	5-6	13-5	10-0
16	11 04-0	11 05-8	10 33-8	1-6	1-2	7-6	5-6	13-6	10-1
17	11 04-3	11 06-1	10 34-0	1-7	1-3	7-7	5-7	13-7	10-2
18	11 04-5	11 06-3	10 34-2	1-8	1-3	7-8	5-8	13-8	10-2
19	11 04-8	11 06-6	10 34-5	1-9	1-4	7-9	5-9	13-9	10-3
20	11 05-0	11 06-8	10 34-7	2-0	1-5	8-0	5-9	14-0	10-4
21	11 05-3	11 07-1	10 34-9	2-1	1-6	8-1	6-0	14-1	10-5
22	11 05-5	11 07-3	10 35-2	2-2	1-6	8-2	6-1	14-2	10-5
23	11 05-8	11 07-6	10 35-4	2-3	1-7	8-3	6-2	14-3	10-6
24	11 06-0	11 07-8	10 35-7	2-4	1-8	8-4	6-2	14-4	10-7
25	11 06-3	11 08-1	10 35-9	2-5	1-9	8-5	6-3	14-5	10-8
26	11 06-5	11 08-3	10 36-1	2-6	1-9	8-6	6-4	14-6	10-8
27	11 06-8	11 08-6	10 36-4	2-7	2-0	8-7	6-5	14-7	10-9
28	11 07-0	11 08-8	10 36-6	2-8	2-1	8-8	6-5	14-8	11-0
29	11 07-3	11 09-1	10 36-9	2-9	2-2	8-9	6-6	14-9	11-1
30	11 07-5	11 09-3	10 37-1	3-0	2-2	9-0	6-7	15-0	11-1
31	11 07-8	11 09-6	10 37-3	3-1	2-3	9-1	6-7	15-1	11-2
32	11 08-0	11 09-8	10 37-6	3-2	2-4	9-2	6-8	15-2	11-3
33	11 08-3	11 10-1	10 37-8	3-3	2-4	9-3	6-9	15-3	11-3
34	11 08-5	11 10-3	10 38-0	3-4	2-5	9-4	7-0	15-4	11-4
35	11 08-8	11 10-6	10 38-3	3-5	2-6	9-5	7-0	15-5	11-5
36	11 09-0	11 10-8	10 38-5	3-6	2-7	9-6	7-1	15-6	11-6
37	11 09-3	11 11-1	10 38-8	3-7	2-7	9-7	7-2	15-7	11-6
38	11 09-5	11 11-3	10 39-0	3-8	2-8	9-8	7-3	15-8	11-7
39	11 09-8	11 11-6	10 39-2	3-9	2-9	9-9	7-3	15-9	11-8
40	11 10-0	11 11-8	10 39-5	4-0	3-0	10-0	7-4	16-0	11-9
41	11 10-3	11 12-1	10 39-7	4-1	3-0	10-1	7-5	16-1	11-9
42	11 10-5	11 12-3	10 40-0	4-2	3-1	10-2	7-6	16-2	12-0
43	11 10-8	11 12-6	10 40-2	4-3	3-2	10-3	7-6	16-3	12-1
44	11 11-0	11 12-8	10 40-4	4-4	3-3	10-4	7-7	16-4	12-2
45	11 11-3	11 13-1	10 40-7	4-5	3-3	10-5	7-8	16-5	12-2
46	11 11-5	11 13-3	10 40-9	4-6	3-4	10-6	7-9	16-6	12-3
47	11 11-8	11 13-6	10 41-1	4-7	3-5	10-7	7-9	16-7	12-4
48	11 12-0	11 13-8	10 41-4	4-8	3-6	10-8	8-0	16-8	12-5
49	11 12-3	11 14-1	10 41-6	4-9	3-6	10-9	8-1	16-9	12-5
50	11 12-5	11 14-3	10 41-9	5-0	3-7	11-0	8-2	17-0	12-6
51	11 12-8	11 14-6	10 42-1	5-1	3-8	11-1	8-2	17-1	12-7
52	11 13-0	11 14-8	10 42-3	5-2	3-9	11-2	8-3	17-2	12-8
53	11 13-3	11 15-1	10 42-6	5-3	3-9	11-3	8-4	17-3	12-8
54	11 13-5	11 15-3	10 42-8	5-4	4-0	11-4	8-5	17-4	12-9
55	11 13-8	11 15-6	10 43-1	5-5	4-1	11-5	8-5	17-5	13-0
56	11 14-0	11 15-8	10 43-3	5-6	4-2	11-6	8-6	17-6	13-1
57	11 14-3	11 16-1	10 43-5	5-7	4-2	11-7	8-7	17-7	13-1
58	11 14-5	11 16-3	10 43-8	5-8	4-3	11-8	8-8	17-8	13-2
59	11 14-8	11 16-6	10 44-0	5-9	4-4	11-9	8-8	17-9	13-3
60	11 15-0	11 16-8	10 44-3	6-0	4-5	12-0	8-9	18-0	13-4

m 45	SUN PLANETS	ARIES	MOON	v or d	Corr ⁿ	v or d	Corr ⁿ	v or d	Corr ⁿ
s	o	i	o	i	i	i	i	i	i
00	11 15-0	11 16-8	10 44-3	0-0	0-0	6-0	4-6	12-0	9-1
01	11 15-3	11 17-1	10 44-5	0-1	0-1	6-1	4-6	12-1	9-2
02	11 15-5	11 17-3	10 44-7	0-2	0-2	6-2	4-7	12-2	9-3
03	11 15-8	11 17-6	10 45-0	0-3	0-2	6-3	4-8	12-3	9-3
04	11 16-0	11 17-9	10 45-2	0-4	0-3	6-4	4-9	12-4	9-4
05	11 16-3	11 18-1	10 45-4	0-5	0-4	6-5	4-9	12-5	9-5
06	11 16-5	11 18-4	10 45-7	0-6	0-5	6-6	5-0	12-6	9-6
07	11 16-8	11 18-6	10 45-9	0-7	0-5	6-7	5-1	12-7	9-6
08	11 17-0	11 18-9	10 46-2	0-8	0-6	6-8	5-2	12-8	9-7
09	11 17-3	11 19-1	10 46-4	0-9	0-7	6-9	5-2	12-9	9-8
10	11 17-5	11 19-4	10 46-6	1-0	0-8	7-0	5-3	13-0	9-9
11	11 17-8	11 19-6	10 46-9	1-1	0-8	7-1	5-4	13-1	9-9
12	11 18-0	11 19-9	10 47-1	1-2	0-9	7-2	5-5	13-2	10-0
13	11 18-3	11 20-1	10 47-4	1-3	1-0	7-3	5-5	13-3	10-1
14	11 18-5	11 20-4	10 47-6	1-4	1-1	7-4	5-6	13-4	10-2
15	11 18-8	11 20-6	10 47-8	1-5	1-1	7-5	5-7	13-5	10-2
16	11 19-0	11 20-9	10 48-1	1-6	1-2	7-6	5-8	13-6	10-3
17	11 19-3	11 21-1	10 48-3	1-7	1-3	7-7	5-8	13-7	10-4
18	11 19-5	11 21-4	10 48-5	1-8	1-4	7-8	5-9	13-8	10-5
19	11 19-8	11 21-6	10 48-8	1-9	1-4	7-9	6-0	13-9	10-5
20	11 20-0	11 21-9	10 49-0	2-0	1-5	8-0	6-1	14-0	10-6
21	11 20-3	11 22-1	10 49-3	2-1	1-6	8-1	6-1	14-1	10-7
22	11 20-5	11 22-4	10 49-5	2-2	1-7	8-2	6-2	14-2	10-8
23	11 20-8	11 22-6	10 49-7	2-3	1-7	8-3	6-3	14-3	10-8
24	11 21-0	11 22-9	10 50-0	2-4	1-8	8-4	6-4	14-4	10-9
25	11 21-3	11 23-1	10 50-2	2-5	1-9	8-5	6-4	14-5	11-0
26	11 21-5	11 23-4	10 50-5	2-6	2-0	8-6	6-5	14-6	11-1
27	11 21-8	11 23-6	10 50-7	2-7	2-0	8-7	6-6	14-7	11-1
28	11 22-0	11 23-9	10 50-9	2-8	2-1	8-8	6-7	14-8	11-2
29	11 22-3	11 24-1	10 51-2	2-9	2-2	8-9	6-7	14-9	11-3
30	11 22-5	11 24-4	10 51-4	3-0	2-3	9-0	6-8	15-0	11-4
31	11 22-8	11 24-6	10 51-6	3-1	2-4	9-1	6-9	15-1	11-5
32	11 23-0	11 24-9	10 51-9	3-2	2-4	9-2	7-0	15-2	11-5
33	11 23-3	11 25-1	10 52-1	3-3	2-5	9-3	7-1	15-3	11-6
34	11 23-5	11 25-4	10 52-4	3-4	2-6	9-4	7-1	15-4	11-7
35	11 23-8	11 25-6	10 52-6	3-5	2-7	9-5	7-2	15-5	11-8
36	11 24-0	11 25-9	10 52-8	3-6	2-7	9-6	7-3	15-6	11-8
37	11 24-3	11 26-1	10 53-1	3-7	2-8	9-7	7-4	15-7	11-9
38	11 24-5	11 26-4	10 53-3	3-8	2-9	9-8	7-4	15-8	12-0
39	11 24-8	11 26-6	10 53-6	3-9	3-0	9-9	7-5	15-9	12-1
40	11 25-0	11 26-9	10 53-8	4-0	3-0	10-0	7-6	16-0	12-1
41	11 25-3	11 27-1	10 54-0	4-1	3-1	10-1	7-7	16-1	12-2
42	11 25-5	11 27-4	10 54-3	4-2	3-2	10-2	7-7	16-2	12-3
43	11 25-8	11 27-6	10 54-5	4-3	3-3	10-3	7-8	16-3	12-4
44	11 26-0	11 27-9	10 54-7	4-4	3-3	10-4	7-9	16-4	12-4
45	11 26-3	11 28-1	10 55-0	4-5	3-4	10-5	8-0	16-5	12-5
46	11 26-5	11 28-4	10 55-2	4-6	3-5	10-6	8-0	16-6	12-6
47	11 26-8	11 28-6	10 55-5	4-7	3-6	10-7	8-1	16-7	12-7
48	11 27-0	11 28-9	10 55-7	4-8	3-6	10-8	8-2	16-8	12-7
49	11 27-3	11 29-1	10 55-9	4-9	3-7	10-9	8-3	16-9	12-8
50	11 27-5	11 29-4	10 56-2	5-0	3-8	11-0	8-3	17-0	12-9
51	11 27-8	11 29-6	10 56-4	5-1	3-9	11-1	8-4	17-1	13-0
52	11 28-0	11 29-9	10 56-7	5-2	3-9	11-2	8-5	17-2	13-0
53	11 28-3	11 30-1	10 56-9	5-3	4-0	11-3	8-6	17-3	13-1
54	11 28-5	11 30-4	10 57-1	5-4	4-1	11-4	8-6	17-4	13-2
55	11 28-8	11 30-6	10 57-4	5-5	4-2	11-5	8-7	17-5	13-3
56	11 29-0	11 30-9	10 57-6	5-6	4-2	11-6	8-8	17-6	13-3
57	11 29-3	11 31-1	10 57-9	5-7	4-3	11-7	8-9	17-7	13-4
58	11 29-5	11 31-4	10 58-1	5-8	4-4	11-8	8-9	17-8	13-5
59	11 29-8	11 31-6	10 58-3	5-9	4-5	11-9	9-0	17-9	13-6
60	11 30-0	11 31-9	10 58-6	6-0	4-6	12-0	9-1	18-0	13-7

46 ^m	SUN PLANETS	ARIES	MOON	v or d	Corr ⁿ	v or d	Corr ⁿ	v or d	Corr ⁿ
s	°	'	°	'	°	'	°	'	°
00	11 30-0	11 31-9	10 58-6	0-0	0-0	6-0	4-7	12-0	9-3
01	11 30-3	11 32-1	10 58-8	0-1	0-1	6-1	4-7	12-1	9-4
02	11 30-5	11 32-4	10 59-0	0-2	0-2	6-2	4-8	12-2	9-5
03	11 30-8	11 32-6	10 59-3	0-3	0-2	6-3	4-9	12-3	9-5
04	11 31-0	11 32-9	10 59-5	0-4	0-3	6-4	5-0	12-4	9-6
05	11 31-3	11 33-1	10 59-8	0-5	0-4	6-5	5-0	12-5	9-7
06	11 31-5	11 33-4	11 00-0	0-6	0-5	6-6	5-1	12-6	9-8
07	11 31-8	11 33-6	11 00-2	0-7	0-5	6-7	5-2	12-7	9-8
08	11 32-0	11 33-9	11 00-5	0-8	0-6	6-8	5-3	12-8	9-9
09	11 32-3	11 34-1	11 00-7	0-9	0-7	6-9	5-3	12-9	10-0
10	11 32-5	11 34-4	11 01-0	1-0	0-8	7-0	5-4	13-0	10-1
11	11 32-8	11 34-6	11 01-2	1-1	0-9	7-1	5-5	13-1	10-2
12	11 33-0	11 34-9	11 01-4	1-2	0-9	7-2	5-6	13-2	10-2
13	11 33-3	11 35-1	11 01-7	1-3	1-0	7-3	5-7	13-3	10-3
14	11 33-5	11 35-4	11 01-9	1-4	1-1	7-4	5-7	13-4	10-4
15	11 33-8	11 35-6	11 02-1	1-5	1-2	7-5	5-8	13-5	10-5
16	11 34-0	11 35-9	11 02-4	1-6	1-2	7-6	5-9	13-6	10-5
17	11 34-3	11 36-2	11 02-6	1-7	1-3	7-7	6-0	13-7	10-6
18	11 34-5	11 36-4	11 02-9	1-8	1-4	7-8	6-0	13-8	10-7
19	11 34-8	11 36-7	11 03-1	1-9	1-5	7-9	6-1	13-9	10-8
20	11 35-0	11 36-9	11 03-3	2-0	1-6	8-0	6-2	14-0	10-9
21	11 35-3	11 37-2	11 03-6	2-1	1-6	8-1	6-3	14-1	10-9
22	11 35-5	11 37-4	11 03-8	2-2	1-7	8-2	6-4	14-2	11-0
23	11 35-8	11 37-7	11 04-1	2-3	1-8	8-3	6-4	14-3	11-1
24	11 36-0	11 37-9	11 04-3	2-4	1-9	8-4	6-5	14-4	11-2
25	11 36-3	11 38-2	11 04-5	2-5	1-9	8-5	6-6	14-5	11-2
26	11 36-5	11 38-4	11 04-8	2-6	2-0	8-6	6-7	14-6	11-3
27	11 36-8	11 38-7	11 05-0	2-7	2-1	8-7	6-7	14-7	11-4
28	11 37-0	11 38-9	11 05-2	2-8	2-2	8-8	6-8	14-8	11-5
29	11 37-3	11 39-2	11 05-5	2-9	2-2	8-9	6-9	14-9	11-5
30	11 37-5	11 39-4	11 05-7	3-0	2-3	9-0	7-0	15-0	11-6
31	11 37-8	11 39-7	11 06-0	3-1	2-4	9-1	7-1	15-1	11-7
32	11 38-0	11 39-9	11 06-2	3-2	2-5	9-2	7-1	15-2	11-8
33	11 38-3	11 40-2	11 06-4	3-3	2-6	9-3	7-2	15-3	11-9
34	11 38-5	11 40-4	11 06-7	3-4	2-6	9-4	7-3	15-4	11-9
35	11 38-8	11 40-7	11 06-9	3-5	2-7	9-5	7-4	15-5	12-0
36	11 39-0	11 40-9	11 07-2	3-6	2-8	9-6	7-4	15-6	12-1
37	11 39-3	11 41-2	11 07-4	3-7	2-9	9-7	7-5	15-7	12-2
38	11 39-5	11 41-4	11 07-6	3-8	2-9	9-8	7-6	15-8	12-2
39	11 39-8	11 41-7	11 07-9	3-9	3-0	9-9	7-7	15-9	12-3
40	11 40-0	11 41-9	11 08-1	4-0	3-1	10-0	7-8	16-0	12-4
41	11 40-3	11 42-2	11 08-3	4-1	3-2	10-1	7-8	16-1	12-5
42	11 40-5	11 42-4	11 08-6	4-2	3-3	10-2	7-9	16-2	12-6
43	11 40-8	11 42-7	11 08-8	4-3	3-3	10-3	8-0	16-3	12-6
44	11 41-0	11 42-9	11 09-1	4-4	3-4	10-4	8-1	16-4	12-7
45	11 41-3	11 43-2	11 09-3	4-5	3-5	10-5	8-1	16-5	12-8
46	11 41-5	11 43-4	11 09-5	4-6	3-6	10-6	8-2	16-6	12-9
47	11 41-8	11 43-7	11 09-8	4-7	3-6	10-7	8-3	16-7	12-9
48	11 42-0	11 43-9	11 10-0	4-8	3-7	10-8	8-4	16-8	13-0
49	11 42-3	11 44-2	11 10-3	4-9	3-8	10-9	8-4	16-9	13-1
50	11 42-5	11 44-4	11 10-5	5-0	3-9	11-0	8-5	17-0	13-2
51	11 42-8	11 44-7	11 10-7	5-1	4-0	11-1	8-6	17-1	13-3
52	11 43-0	11 44-9	11 11-0	5-2	4-0	11-2	8-7	17-2	13-3
53	11 43-3	11 45-2	11 11-2	5-3	4-1	11-3	8-8	17-3	13-4
54	11 43-5	11 45-4	11 11-5	5-4	4-2	11-4	8-8	17-4	13-5
55	11 43-8	11 45-7	11 11-7	5-5	4-3	11-5	8-9	17-5	13-6
56	11 44-0	11 45-9	11 11-9	5-6	4-3	11-6	9-0	17-6	13-6
57	11 44-3	11 46-2	11 12-2	5-7	4-4	11-7	9-1	17-7	13-7
58	11 44-5	11 46-4	11 12-4	5-8	4-5	11-8	9-1	17-8	13-8
59	11 44-8	11 46-7	11 12-6	5-9	4-6	11-9	9-2	17-9	13-9
60	11 45-0	11 46-9	11 12-9	6-0	4-7	12-0	9-3	18-0	14-0

47 ^m	SUN PLANETS	ARIES	MOON	v or d	Corr ⁿ	v or d	Corr ⁿ	v or d	Corr ⁿ
s	°	'	°	'	°	'	°	'	°
00	11 45-0	11 46-9	11 12-9	0-0	0-0	6-0	4-8	12-0	9-5
01	11 45-3	11 47-2	11 13-1	0-1	0-1	6-1	4-8	12-1	9-6
02	11 45-5	11 47-4	11 13-4	0-2	0-2	6-2	4-9	12-2	9-7
03	11 45-8	11 47-7	11 13-6	0-3	0-2	6-3	5-0	12-3	9-7
04	11 46-0	11 47-9	11 13-8	0-4	0-3	6-4	5-1	12-4	9-8
05	11 46-3	11 48-2	11 14-1	0-5	0-4	6-5	5-1	12-5	9-9
06	11 46-5	11 48-4	11 14-3	0-6	0-5	6-6	5-2	12-6	10-0
07	11 46-8	11 48-7	11 14-6	0-7	0-6	6-7	5-3	12-7	10-1
08	11 47-0	11 48-9	11 14-8	0-8	0-6	6-8	5-4	12-8	10-1
09	11 47-3	11 49-2	11 15-0	0-9	0-7	6-9	5-5	12-9	10-2
10	11 47-5	11 49-4	11 15-3	1-0	0-8	7-0	5-5	13-0	10-3
11	11 47-8	11 49-7	11 15-5	1-1	0-9	7-1	5-6	13-1	10-4
12	11 48-0	11 49-9	11 15-7	1-2	1-0	7-2	5-7	13-2	10-5
13	11 48-3	11 50-2	11 16-0	1-3	1-0	7-3	5-8	13-3	10-5
14	11 48-5	11 50-4	11 16-2	1-4	1-1	7-4	5-9	13-4	10-6
15	11 48-8	11 50-7	11 16-5	1-5	1-2	7-5	5-9	13-5	10-7
16	11 49-0	11 50-9	11 16-7	1-6	1-3	7-6	6-0	13-6	10-8
17	11 49-3	11 51-2	11 16-9	1-7	1-3	7-7	6-1	13-7	10-8
18	11 49-5	11 51-4	11 17-2	1-8	1-4	7-8	6-2	13-8	10-9
19	11 49-8	11 51-7	11 17-4	1-9	1-5	7-9	6-3	13-9	11-0
20	11 50-0	11 51-9	11 17-7	2-0	1-6	8-0	6-3	14-0	11-1
21	11 50-3	11 52-2	11 17-9	2-1	1-7	8-1	6-4	14-1	11-2
22	11 50-5	11 52-4	11 18-1	2-2	1-7	8-2	6-5	14-2	11-2
23	11 50-8	11 52-7	11 18-4	2-3	1-8	8-3	6-6	14-3	11-3
24	11 51-0	11 52-9	11 18-6	2-4	1-9	8-4	6-7	14-4	11-4
25	11 51-3	11 53-2	11 18-8	2-5	2-0	8-5	6-7	14-5	11-5
26	11 51-5	11 53-4	11 19-1	2-6	2-1	8-6	6-8	14-6	11-6
27	11 51-8	11 53-7	11 19-3	2-7	2-1	8-7	6-9	14-7	11-6
28	11 52-0	11 53-9	11 19-6	2-8	2-2	8-8	7-0	14-8	11-7
29	11 52-3	11 54-2	11 19-8	2-9	2-3	8-9	7-0	14-9	11-8
30	11 52-5	11 54-5	11 20-0	3-0	2-4	9-0	7-1	15-0	11-9
31	11 52-8	11 54-7	11 20-3	3-1	2-5	9-1	7-2	15-1	12-0
32	11 53-0	11 55-0	11 20-5	3-2	2-5	9-2	7-3	15-2	12-0
33	11 53-3	11 55-2	11 20-8	3-3	2-6	9-3	7-4	15-3	12-1
34	11 53-5	11 55-5	11 21-0	3-4	2-7	9-4	7-4	15-4	12-2
35	11 53-8	11 55-7	11 21-2	3-5	2-8	9-5	7-5	15-5	12-3
36	11 54-0	11 56-0	11 21-5	3-6	2-9	9-6	7-6	15-6	12-4
37	11 54-3	11 56-2	11 21-7	3-7	2-9	9-7	7-7	15-7	12-4
38	11 54-5	11 56-5	11 22-0	3-8	3-0	9-8	7-8	15-8	12-5
39	11 54-8	11 56-7	11 22-2	3-9	3-1	9-9	7-8	15-9	12-6
40	11 55-0	11 57-0	11 22-4	4-0	3-2	10-0	7-9	16-0	12-7
41	11 55-3	11 57-2	11 22-7	4-1	3-2	10-1	8-0	16-1	12-7
42	11 55-5	11 57-5	11 22-9	4-2	3-3	10-2	8-1	16-2	12-8
43	11 55-8	11 57-7	11 23-1	4-3	3-4	10-3	8-2	16-3	12-9
44	11 56-0	11 58-0	11 23-4	4-4	3-5	10-4	8-2	16-4	13-0
45	11 56-3	11 58-2	11 23-6	4-5	3-6	10-5	8-3	16-5	13-1
46	11 56-5	11 58-5	11 23-9	4-6	3-6	10-6	8-4	16-6	13-1
47	11 56-8	11 58-7	11 24-1	4-7	3-7	10-7	8-5	16-7	13-2
48	11 57-0	11 59-0	11 24-3	4-8	3-8	10-8	8-6	16-8	13-3
49	11 57-3	11 59-2	11 24-6	4-9	3-9	10-9	8-6	16-9	13-4
50	11 57-5	11 59-5	11 24-8	5-0	4-0	11-0	8-7	17-0	13-5
51	11 57-8	11 59-7	11 25-1	5-1	4-0	11-1	8-8	17-1	13-5
52	11 58-0	12 00-0	11 25-3	5-2	4-1	11-2	8-9	17-2	13-6
53	11 58-3	12 00-2	11 25-5	5-3	4-2	11-3	8-9	17-3	13-7
54	11 58-5	12 00-5	11 25-8	5-4	4-3	11-4	9-0	17-4	13-8
55	11 58-8	12 00-7	11 26-0	5-5	4-4	11-5	9-1	17-5	13-9
56	11 59-0	12 01-0	11 26-2	5-6	4-4	11-6	9-2	17-6	13-9
57	11 59-3	12 01-2	11 26-5	5-7	4-5	11-7	9-3	17-7	14-0
58	11 59-5	12 01-5	11 26-7	5-8	4-6	11-8	9-3	17-8	14-1
59	11 59-8	12 01-7	11 27-0	5-9	4-7	11-9	9-4	17-9	14-2
60	12 00-0	12 02-0	11 27-2	6-0	4-8	12-0	9-5	18-0	14-3

48 ^m	SUN PLANETS	ARIES	MOON	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ
s	° /	° /	° /	/ /	/ /	/ /
00	12 00-0	12 02-0	11 27-2	0-0 0-0	6-0 4-9	12-0 9-7
01	12 00-3	12 02-2	11 27-4	0-1 0-1	6-1 4-9	12-1 9-8
02	12 00-5	12 02-5	11 27-7	0-2 0-2	6-2 5-0	12-2 9-9
03	12 00-8	12 02-7	11 27-9	0-3 0-2	6-3 5-1	12-3 9-9
04	12 01-0	12 03-0	11 28-2	0-4 0-3	6-4 5-2	12-4 10-0
05	12 01-3	12 03-2	11 28-4	0-5 0-4	6-5 5-3	12-5 10-1
06	12 01-5	12 03-5	11 28-6	0-6 0-5	6-6 5-3	12-6 10-2
07	12 01-8	12 03-7	11 28-9	0-7 0-6	6-7 5-4	12-7 10-3
08	12 02-0	12 04-0	11 29-1	0-8 0-6	6-8 5-5	12-8 10-3
09	12 02-3	12 04-2	11 29-3	0-9 0-7	6-9 5-6	12-9 10-4
10	12 02-5	12 04-5	11 29-6	1-0 0-8	7-0 5-7	13-0 10-5
11	12 02-8	12 04-7	11 29-8	1-1 0-9	7-1 5-7	13-1 10-6
12	12 03-0	12 05-0	11 30-1	1-2 1-0	7-2 5-8	13-2 10-7
13	12 03-3	12 05-2	11 30-3	1-3 1-1	7-3 5-9	13-3 10-8
14	12 03-5	12 05-5	11 30-5	1-4 1-1	7-4 6-0	13-4 10-8
15	12 03-8	12 05-7	11 30-8	1-5 1-2	7-5 6-1	13-5 10-9
16	12 04-0	12 06-0	11 31-0	1-6 1-3	7-6 6-1	13-6 11-0
17	12 04-3	12 06-2	11 31-3	1-7 1-4	7-7 6-2	13-7 11-1
18	12 04-5	12 06-5	11 31-5	1-8 1-5	7-8 6-3	13-8 11-2
19	12 04-8	12 06-7	11 31-7	1-9 1-5	7-9 6-4	13-9 11-2
20	12 05-0	12 07-0	11 32-0	2-0 1-6	8-0 6-5	14-0 11-3
21	12 05-3	12 07-2	11 32-2	2-1 1-7	8-1 6-5	14-1 11-4
22	12 05-5	12 07-5	11 32-4	2-2 1-8	8-2 6-6	14-2 11-5
23	12 05-8	12 07-7	11 32-7	2-3 1-9	8-3 6-7	14-3 11-6
24	12 06-0	12 08-0	11 32-9	2-4 1-9	8-4 6-8	14-4 11-6
25	12 06-3	12 08-2	11 33-2	2-5 2-0	8-5 6-9	14-5 11-7
26	12 06-5	12 08-5	11 33-4	2-6 2-1	8-6 7-0	14-6 11-8
27	12 06-8	12 08-7	11 33-6	2-7 2-2	8-7 7-0	14-7 11-9
28	12 07-0	12 09-0	11 33-9	2-8 2-3	8-8 7-1	14-8 12-0
29	12 07-3	12 09-2	11 34-1	2-9 2-3	8-9 7-2	14-9 12-0
30	12 07-5	12 09-5	11 34-4	3-0 2-4	9-0 7-3	15-0 12-1
31	12 07-8	12 09-7	11 34-6	3-1 2-5	9-1 7-4	15-1 12-2
32	12 08-0	12 10-0	11 34-8	3-2 2-6	9-2 7-4	15-2 12-3
33	12 08-3	12 10-2	11 35-1	3-3 2-7	9-3 7-5	15-3 12-4
34	12 08-5	12 10-5	11 35-3	3-4 2-7	9-4 7-6	15-4 12-4
35	12 08-8	12 10-7	11 35-6	3-5 2-8	9-5 7-7	15-5 12-5
36	12 09-0	12 11-0	11 35-8	3-6 2-9	9-6 7-8	15-6 12-6
37	12 09-3	12 11-2	11 36-0	3-7 3-0	9-7 7-8	15-7 12-7
38	12 09-5	12 11-5	11 36-3	3-8 3-1	9-8 7-9	15-8 12-8
39	12 09-8	12 11-7	11 36-5	3-9 3-2	9-9 8-0	15-9 12-9
40	12 10-0	12 12-0	11 36-7	4-0 3-2	10-0 8-1	16-0 12-9
41	12 10-3	12 12-2	11 37-0	4-1 3-3	10-1 8-2	16-1 13-0
42	12 10-5	12 12-5	11 37-2	4-2 3-4	10-2 8-2	16-2 13-1
43	12 10-8	12 12-8	11 37-5	4-3 3-5	10-3 8-3	16-3 13-2
44	12 11-0	12 13-0	11 37-7	4-4 3-6	10-4 8-4	16-4 13-3
45	12 11-3	12 13-3	11 37-9	4-5 3-6	10-5 8-5	16-5 13-3
46	12 11-5	12 13-5	11 38-2	4-6 3-7	10-6 8-6	16-6 13-4
47	12 11-8	12 13-8	11 38-4	4-7 3-8	10-7 8-6	16-7 13-5
48	12 12-0	12 14-0	11 38-7	4-8 3-9	10-8 8-7	16-8 13-6
49	12 12-3	12 14-3	11 38-9	4-9 4-0	10-9 8-8	16-9 13-7
50	12 12-5	12 14-5	11 39-1	5-0 4-0	11-0 8-9	17-0 13-7
51	12 12-8	12 14-8	11 39-4	5-1 4-1	11-1 9-0	17-1 13-8
52	12 13-0	12 15-0	11 39-6	5-2 4-2	11-2 9-1	17-2 13-9
53	12 13-3	12 15-3	11 39-8	5-3 4-3	11-3 9-1	17-3 14-0
54	12 13-5	12 15-5	11 40-1	5-4 4-4	11-4 9-2	17-4 14-1
55	12 13-8	12 15-8	11 40-3	5-5 4-4	11-5 9-3	17-5 14-1
56	12 14-0	12 16-0	11 40-6	5-6 4-5	11-6 9-4	17-6 14-2
57	12 14-3	12 16-3	11 40-8	5-7 4-6	11-7 9-5	17-7 14-3
58	12 14-5	12 16-5	11 41-0	5-8 4-7	11-8 9-5	17-8 14-4
59	12 14-8	12 16-8	11 41-3	5-9 4-8	11-9 9-6	17-9 14-5
60	12 15-0	12 17-0	11 41-5	6-0 4-9	12-0 9-7	18-0 14-6

49 ^m	SUN PLANETS	ARIES	MOON	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ
s	° /	° /	° /	/ /	/ /	/ /
00	12 15-0	12 17-0	11 41-5	0-0 0-0	6-0 5-0	12-0 9-9
01	12 15-3	12 17-3	11 41-8	0-1 0-1	6-1 5-0	12-1 10-0
02	12 15-5	12 17-5	11 42-0	0-2 0-2	6-2 5-1	12-2 10-1
03	12 15-8	12 17-8	11 42-2	0-3 0-2	6-3 5-2	12-3 10-1
04	12 16-0	12 18-0	11 42-5	0-4 0-3	6-4 5-3	12-4 10-2
05	12 16-3	12 18-3	11 42-7	0-5 0-4	6-5 5-4	12-5 10-3
06	12 16-5	12 18-5	11 42-9	0-6 0-5	6-6 5-4	12-6 10-4
07	12 16-8	12 18-8	11 43-2	0-7 0-6	6-7 5-5	12-7 10-5
08	12 17-0	12 19-0	11 43-4	0-8 0-7	6-8 5-6	12-8 10-6
09	12 17-3	12 19-3	11 43-7	0-9 0-7	6-9 5-7	12-9 10-6
10	12 17-5	12 19-5	11 43-9	1-0 0-8	7-0 5-8	13-0 10-7
11	12 17-8	12 19-8	11 44-1	1-1 0-9	7-1 5-9	13-1 10-8
12	12 18-0	12 20-0	11 44-4	1-2 1-0	7-2 5-9	13-2 10-9
13	12 18-3	12 20-3	11 44-6	1-3 1-1	7-3 6-0	13-3 11-0
14	12 18-5	12 20-5	11 44-9	1-4 1-2	7-4 6-1	13-4 11-1
15	12 18-8	12 20-8	11 45-1	1-5 1-2	7-5 6-2	13-5 11-1
16	12 19-0	12 21-0	11 45-3	1-6 1-3	7-6 6-3	13-6 11-2
17	12 19-3	12 21-3	11 45-6	1-7 1-4	7-7 6-4	13-7 11-3
18	12 19-5	12 21-5	11 45-8	1-8 1-5	7-8 6-4	13-8 11-4
19	12 19-8	12 21-8	11 46-1	1-9 1-6	7-9 6-5	13-9 11-5
20	12 20-0	12 22-0	11 46-3	2-0 1-7	8-0 6-6	14-0 11-6
21	12 20-3	12 22-3	11 46-5	2-1 1-7	8-1 6-7	14-1 11-6
22	12 20-5	12 22-5	11 46-8	2-2 1-8	8-2 6-8	14-2 11-7
23	12 20-8	12 22-8	11 47-0	2-3 1-9	8-3 6-8	14-3 11-8
24	12 21-0	12 23-0	11 47-2	2-4 2-0	8-4 6-9	14-4 11-9
25	12 21-3	12 23-3	11 47-5	2-5 2-1	8-5 7-0	14-5 12-0
26	12 21-5	12 23-5	11 47-7	2-6 2-1	8-6 7-1	14-6 12-0
27	12 21-8	12 23-8	11 48-0	2-7 2-2	8-7 7-2	14-7 12-1
28	12 22-0	12 24-0	11 48-2	2-8 2-3	8-8 7-3	14-8 12-2
29	12 22-3	12 24-3	11 48-4	2-9 2-4	8-9 7-3	14-9 12-3
30	12 22-5	12 24-5	11 48-7	3-0 2-5	9-0 7-4	15-0 12-4
31	12 22-8	12 24-8	11 48-9	3-1 2-6	9-1 7-5	15-1 12-5
32	12 23-0	12 25-0	11 49-2	3-2 2-6	9-2 7-6	15-2 12-5
33	12 23-3	12 25-3	11 49-4	3-3 2-7	9-3 7-7	15-3 12-6
34	12 23-5	12 25-5	11 49-6	3-4 2-8	9-4 7-8	15-4 12-7
35	12 23-8	12 25-8	11 49-9	3-5 2-9	9-5 7-8	15-5 12-8
36	12 24-0	12 26-0	11 50-1	3-6 3-0	9-6 7-9	15-6 12-9
37	12 24-3	12 26-3	11 50-3	3-7 3-1	9-7 8-0	15-7 13-0
38	12 24-5	12 26-5	11 50-6	3-8 3-1	9-8 8-1	15-8 13-0
39	12 24-8	12 26-8	11 50-8	3-9 3-2	9-9 8-2	15-9 13-1
40	12 25-0	12 27-0	11 51-1	4-0 3-3	10-0 8-3	16-0 13-2
41	12 25-3	12 27-3	11 51-3	4-1 3-4	10-1 8-3	16-1 13-3
42	12 25-5	12 27-5	11 51-5	4-2 3-5	10-2 8-4	16-2 13-4
43	12 25-8	12 27-8	11 51-8	4-3 3-5	10-3 8-5	16-3 13-4
44	12 26-0	12 28-0	11 52-0	4-4 3-6	10-4 8-6	16-4 13-5
45	12 26-3	12 28-3	11 52-3	4-5 3-7	10-5 8-7	16-5 13-6
46	12 26-5	12 28-5	11 52-5	4-6 3-8	10-6 8-7	16-6 13-7
47	12 26-8	12 28-8	11 52-7	4-7 3-9	10-7 8-8	16-7 13-8
48	12 27-0	12 29-0	11 53-0	4-8 4-0	10-8 8-9	16-8 13-9
49	12 27-3	12 29-3	11 53-2	4-9 4-0	10-9 9-0	16-9 13-9
50	12 27-5	12 29-5	11 53-4	5-0 4-1	11-0 9-1	17-0 14-0
51	12 27-8	12 29-8	11 53-7	5-1 4-2	11-1 9-2	17-1 14-1
52	12 28-0	12 30-0	11 53-9	5-2 4-3	11-2 9-2	17-2 14-2
53	12 28-3	12 30-3	11 54-2	5-3 4-4	11-3 9-3	17-3 14-3
54	12 28-5	12 30-5	11 54-4	5-4 4-5	11-4 9-4	17-4 14-4
55	12 28-8	12 30-8	11 54-6	5-5 4-5	11-5 9-5	17-5 14-4
56	12 29-0	12 31-1	11 54-9	5-6 4-6	11-6 9-6	17-6 14-5
57	12 29-3	12 31-3	11 55-1	5-7 4-7	11-7 9-7	17-7 14-6
58	12 29-5	12 31-5	11 55-4	5-8 4-8	11-8 9-7	17-8 14-7
59	12 29-8	12 31-8	11 55-6	5-9 4-9	11-9 9-8	17-9 14-8
60	12 30-0	12 32-1	11 55-8	6-0 5-0	12-0 9-9	18-0 14-9

50 ^m	SUN PLANETS	ARIES	MOON	ν or d	Corr ⁿ	ν or d	Corr ⁿ	ν or d	Corr ⁿ
00	12 30-0	12 32-1	11 55-8	0-0	0-0	6-0	5-1	12-0	10-1
01	12 30-3	12 32-3	11 56-1	0-1	0-1	6-1	5-1	12-1	10-2
02	12 30-5	12 32-6	11 56-3	0-2	0-2	6-2	5-2	12-2	10-3
03	12 30-8	12 32-8	11 56-5	0-3	0-3	6-3	5-3	12-3	10-4
04	12 31-0	12 33-1	11 56-8	0-4	0-3	6-4	5-4	12-4	10-4
05	12 31-3	12 33-3	11 57-0	0-5	0-4	6-5	5-5	12-5	10-5
06	12 31-5	12 33-6	11 57-3	0-6	0-5	6-6	5-6	12-6	10-6
07	12 31-8	12 33-8	11 57-5	0-7	0-6	6-7	5-6	12-7	10-7
08	12 32-0	12 34-1	11 57-7	0-8	0-7	6-8	5-7	12-8	10-8
09	12 32-3	12 34-3	11 58-0	0-9	0-8	6-9	5-8	12-9	10-9
10	12 32-5	12 34-6	11 58-2	1-0	0-8	7-0	5-9	13-0	10-9
11	12 32-8	12 34-8	11 58-5	1-1	0-9	7-1	6-0	13-1	11-0
12	12 33-0	12 35-1	11 58-7	1-2	1-0	7-2	6-1	13-2	11-1
13	12 33-3	12 35-3	11 58-9	1-3	1-1	7-3	6-1	13-3	11-2
14	12 33-5	12 35-6	11 59-2	1-4	1-2	7-4	6-2	13-4	11-3
15	12 33-8	12 35-8	11 59-4	1-5	1-3	7-5	6-3	13-5	11-4
16	12 34-0	12 36-1	11 59-7	1-6	1-3	7-6	6-4	13-6	11-4
17	12 34-3	12 36-3	11 59-9	1-7	1-4	7-7	6-5	13-7	11-5
18	12 34-5	12 36-6	12 00-1	1-8	1-5	7-8	6-6	13-8	11-6
19	12 34-8	12 36-8	12 00-4	1-9	1-6	7-9	6-6	13-9	11-7
20	12 35-0	12 37-1	12 00-6	2-0	1-7	8-0	6-7	14-0	11-8
21	12 35-3	12 37-3	12 00-8	2-1	1-8	8-1	6-8	14-1	11-9
22	12 35-5	12 37-6	12 01-1	2-2	1-9	8-2	6-9	14-2	12-0
23	12 35-8	12 37-8	12 01-3	2-3	1-9	8-3	7-0	14-3	12-0
24	12 36-0	12 38-1	12 01-6	2-4	2-0	8-4	7-1	14-4	12-1
25	12 36-3	12 38-3	12 01-8	2-5	2-1	8-5	7-2	14-5	12-2
26	12 36-5	12 38-6	12 02-0	2-6	2-2	8-6	7-2	14-6	12-3
27	12 36-8	12 38-8	12 02-3	2-7	2-3	8-7	7-3	14-7	12-4
28	12 37-0	12 39-1	12 02-5	2-8	2-4	8-8	7-4	14-8	12-5
29	12 37-3	12 39-3	12 02-8	2-9	2-4	8-9	7-5	14-9	12-5
30	12 37-5	12 39-6	12 03-0	3-0	2-5	9-0	7-6	15-0	12-6
31	12 37-8	12 39-8	12 03-2	3-1	2-6	9-1	7-7	15-1	12-7
32	12 38-0	12 40-1	12 03-5	3-2	2-7	9-2	7-7	15-2	12-8
33	12 38-3	12 40-3	12 03-7	3-3	2-8	9-3	7-8	15-3	12-9
34	12 38-5	12 40-6	12 03-9	3-4	2-9	9-4	7-9	15-4	13-0
35	12 38-8	12 40-8	12 04-2	3-5	2-9	9-5	8-0	15-5	13-0
36	12 39-0	12 41-1	12 04-4	3-6	3-0	9-6	8-1	15-6	13-1
37	12 39-3	12 41-3	12 04-7	3-7	3-1	9-7	8-2	15-7	13-2
38	12 39-5	12 41-6	12 04-9	3-8	3-2	9-8	8-2	15-8	13-3
39	12 39-8	12 41-8	12 05-1	3-9	3-3	9-9	8-3	15-9	13-4
40	12 40-0	12 42-1	12 05-4	4-0	3-4	10-0	8-4	16-0	13-5
41	12 40-3	12 42-3	12 05-6	4-1	3-5	10-1	8-5	16-1	13-6
42	12 40-5	12 42-6	12 05-9	4-2	3-5	10-2	8-6	16-2	13-6
43	12 40-8	12 42-8	12 06-1	4-3	3-6	10-3	8-7	16-3	13-7
44	12 41-0	12 43-1	12 06-3	4-4	3-7	10-4	8-8	16-4	13-8
45	12 41-3	12 43-3	12 06-6	4-5	3-8	10-5	8-8	16-5	13-9
46	12 41-5	12 43-6	12 06-8	4-6	3-9	10-6	8-9	16-6	14-0
47	12 41-8	12 43-8	12 07-0	4-7	4-0	10-7	9-0	16-7	14-1
48	12 42-0	12 44-1	12 07-3	4-8	4-0	10-8	9-1	16-8	14-1
49	12 42-3	12 44-3	12 07-5	4-9	4-1	10-9	9-2	16-9	14-2
50	12 42-5	12 44-6	12 07-8	5-0	4-2	11-0	9-3	17-0	14-3
51	12 42-8	12 44-8	12 08-0	5-1	4-3	11-1	9-3	17-1	14-4
52	12 43-0	12 45-1	12 08-2	5-2	4-4	11-2	9-4	17-2	14-5
53	12 43-3	12 45-3	12 08-5	5-3	4-5	11-3	9-5	17-3	14-6
54	12 43-5	12 45-6	12 08-7	5-4	4-5	11-4	9-6	17-4	14-6
55	12 43-8	12 45-8	12 09-0	5-5	4-6	11-5	9-7	17-5	14-7
56	12 44-0	12 46-1	12 09-2	5-6	4-7	11-6	9-8	17-6	14-8
57	12 44-3	12 46-3	12 09-4	5-7	4-8	11-7	9-8	17-7	14-9
58	12 44-5	12 46-6	12 09-7	5-8	4-9	11-8	9-9	17-8	15-0
59	12 44-8	12 46-8	12 09-9	5-9	5-0	11-9	10-0	17-9	15-1
60	12 45-0	12 47-1	12 10-2	6-0	5-1	12-0	10-1	18-0	15-2

m 51	SUN PLANETS	ARIES	MOON	v or d		v or d		v or d	
				°	'	°	'	°	'
00	12 45-0	12 47-1	12 10-2	0-0	0-0	6-0	5-2	12-0	10-3
01	12 45-3	12 47-3	12 10-4	0-1	0-1	6-1	5-2	12-1	10-4
02	12 45-5	12 47-6	12 10-6	0-2	0-2	6-2	5-3	12-2	10-5
03	12 45-8	12 47-8	12 10-9	0-3	0-3	6-3	5-4	12-3	10-6
04	12 46-0	12 48-1	12 11-1	0-4	0-3	6-4	5-5	12-4	10-6
05	12 46-3	12 48-3	12 11-3	0-5	0-4	6-5	5-6	12-5	10-7
06	12 46-5	12 48-6	12 11-6	0-6	0-5	6-6	5-7	12-6	10-8
07	12 46-8	12 48-8	12 11-8	0-7	0-6	6-7	5-8	12-7	10-9
08	12 47-0	12 49-1	12 12-1	0-8	0-7	6-8	5-8	12-8	11-0
09	12 47-3	12 49-4	12 12-3	0-9	0-8	6-9	5-9	12-9	11-1
10	12 47-5	12 49-6	12 12-5	1-0	0-9	7-0	6-0	13-0	11-2
11	12 47-8	12 49-9	12 12-8	1-1	0-9	7-1	6-1	13-1	11-2
12	12 48-0	12 50-1	12 13-0	1-2	1-0	7-2	6-2	13-2	11-3
13	12 48-3	12 50-4	12 13-3	1-3	1-1	7-3	6-3	13-3	11-4
14	12 48-5	12 50-6	12 13-5	1-4	1-2	7-4	6-4	13-4	11-5
15	12 48-8	12 50-9	12 13-7	1-5	1-3	7-5	6-4	13-5	11-6
16	12 49-0	12 51-1	12 14-0	1-6	1-4	7-6	6-5	13-6	11-7
17	12 49-3	12 51-4	12 14-2	1-7	1-5	7-7	6-6	13-7	11-8
18	12 49-5	12 51-6	12 14-4	1-8	1-5	7-8	6-7	13-8	11-8
19	12 49-8	12 51-9	12 14-7	1-9	1-6	7-9	6-8	13-9	11-9
20	12 50-0	12 52-1	12 14-9	2-0	1-7	8-0	6-9	14-0	12-0
21	12 50-3	12 52-4	12 15-2	2-1	1-8	8-1	7-0	14-1	12-1
22	12 50-5	12 52-6	12 15-4	2-2	1-9	8-2	7-0	14-2	12-2
23	12 50-8	12 52-9	12 15-6	2-3	2-0	8-3	7-1	14-3	12-3
24	12 51-0	12 53-1	12 15-9	2-4	2-1	8-4	7-2	14-4	12-4
25	12 51-3	12 53-4	12 16-1	2-5	2-1	8-5	7-3	14-5	12-4
26	12 51-5	12 53-6	12 16-4	2-6	2-2	8-6	7-4	14-6	12-5
27	12 51-8	12 53-9	12 16-6	2-7	2-3	8-7	7-5	14-7	12-6
28	12 52-0	12 54-1	12 16-8	2-8	2-4	8-8	7-6	14-8	12-7
29	12 52-3	12 54-4	12 17-1	2-9	2-5	8-9	7-6	14-9	12-8
30	12 52-5	12 54-6	12 17-3	3-0	2-6	9-0	7-7	15-0	12-9
31	12 52-8	12 54-9	12 17-5	3-1	2-7	9-1	7-8	15-1	13-0
32	12 53-0	12 55-1	12 17-8	3-2	2-7	9-2	7-9	15-2	13-0
33	12 53-3	12 55-4	12 18-0	3-3	2-8	9-3	8-0	15-3	13-1
34	12 53-5	12 55-6	12 18-3	3-4	2-9	9-4	8-1	15-4	13-2
35	12 53-8	12 55-9	12 18-5	3-5	3-0	9-5	8-2	15-5	13-3
36	12 54-0	12 56-1	12 18-7	3-6	3-1	9-6	8-2	15-6	13-4
37	12 54-3	12 56-4	12 19-0	3-7	3-2	9-7	8-3	15-7	13-5
38	12 54-5	12 56-6	12 19-2	3-8	3-3	9-8	8-4	15-8	13-6
39	12 54-8	12 56-9	12 19-5	3-9	3-3	9-9	8-5	15-9	13-6
40	12 55-0	12 57-1	12 19-7	4-0	3-4	10-0	8-6	16-0	13-7
41	12 55-3	12 57-4	12 19-9	4-1	3-5	10-1	8-7	16-1	13-8
42	12 55-5	12 57-6	12 20-2	4-2	3-6	10-2	8-8	16-2	13-9
43	12 55-8	12 57-9	12 20-4	4-3	3-7	10-3	8-8	16-3	14-0
44	12 56-0	12 58-1	12 20-6	4-4	3-8	10-4	8-9	16-4	14-1
45	12 56-3	12 58-4	12 20-9	4-5	3-9	10-5	9-0	16-5	14-2
46	12 56-5	12 58-6	12 21-1	4-6	3-9	10-6	9-1	16-6	14-2
47	12 56-8	12 58-9	12 21-4	4-7	4-0	10-7	9-2	16-7	14-3
48	12 57-0	12 59-1	12 21-6	4-8	4-1	10-8	9-3	16-8	14-4
49	12 57-3	12 59-4	12 21-8	4-9	4-2	10-9	9-4	16-9	14-5
50	12 57-5	12 59-6	12 22-1	5-0	4-3	11-0	9-4	17-0	14-6
51	12 57-8	12 59-9	12 22-3	5-1	4-4	11-1	9-5	17-1	14-7
52	12 58-0	13 00-1	12 22-6	5-2	4-5	11-2	9-6	17-2	14-8
53	12 58-3	13 00-4	12 22-8	5-3	4-5	11-3	9-7	17-3	14-8
54	12 58-5	13 00-6	12 23-0	5-4	4-6	11-4	9-8	17-4	14-9
55	12 58-8	13 00-9	12 23-3	5-5	4-7	11-5	9-9	17-5	15-0
56	12 59-0	13 01-1	12 23-5	5-6	4-8	11-6	10-0	17-6	15-1
57	12 59-3	13 01-4	12 23-8	5-7	4-9	11-7	10-0	17-7	15-2
58	12 59-5	13 01-6	12 24-0	5-8	5-0	11-8	10-1	17-8	15-3
59	12 59-8	13 01-9	12 24-2	5-9	5-1	11-9	10-2	17-9	15-4
60	13 00-0	13 02-1	12 24-5	6-0	5-2	12-0	10-3	18-0	15-5

52 ^m	SUN PLANETS	ARIES	MOON	$\frac{t}{d}$ or Corr ⁿ	$\frac{t}{d}$ or Corr ⁿ	$\frac{t}{d}$ or Corr ⁿ	53 ^m	SUN PLANETS	ARIES	MOON	$\frac{t}{d}$ or Corr ⁿ	$\frac{t}{d}$ or Corr ⁿ	$\frac{t}{d}$ or Corr ⁿ
s	s	s	s	s	s	s	s	s	s	s	s	s	s
00	13 00-0	13 02-1	12 24-5	0-0	0-0	0-0	00	13 15-0	13 17-2	12 38-6	0-0	0-0	0-0
01	13 00-3	13 02-4	12 24-7	0-1	0-1	0-1	01	13 15-3	13 17-4	12 39-0	0-1	0-1	0-1
02	13 00-5	13 02-6	12 24-9	0-2	0-2	0-2	02	13 15-5	13 17-7	12 39-3	0-2	0-2	0-2
03	13 00-8	13 02-9	12 25-2	0-3	0-3	0-3	03	13 15-8	13 17-9	12 39-5	0-3	0-3	0-3
04	13 01-0	13 03-1	12 25-4	0-4	0-4	0-4	04	13 16-0	13 18-2	12 39-7	0-4	0-4	0-4
05	13 01-3	13 03-4	12 25-7	0-5	0-4	0-5	05	13 16-3	13 18-4	12 40-0	0-5	0-4	0-5
06	13 01-5	13 03-6	12 25-9	0-6	0-5	0-6	06	13 16-5	13 18-7	12 40-2	0-6	0-5	0-6
07	13 01-8	13 03-9	12 26-1	0-7	0-6	0-7	07	13 16-8	13 18-9	12 40-5	0-7	0-6	0-7
08	13 02-0	13 04-1	12 26-4	0-8	0-7	0-8	08	13 17-0	13 19-2	12 40-7	0-8	0-7	0-8
09	13 02-3	13 04-4	12 26-6	0-9	0-8	0-9	09	13 17-3	13 19-4	12 40-9	0-9	0-8	0-9
10	13 02-5	13 04-6	12 26-9	1-0	0-9	1-0	10	13 17-5	13 19-7	12 41-2	1-0	0-9	1-0
11	13 02-8	13 04-9	12 27-1	1-1	1-0	1-1	11	13 17-8	13 19-9	12 41-4	1-1	1-0	1-1
12	13 03-0	13 05-1	12 27-3	1-2	1-1	1-2	12	13 18-0	13 20-2	12 41-6	1-2	1-1	1-2
13	13 03-3	13 05-4	12 27-6	1-3	1-1	1-3	13	13 18-3	13 20-4	12 41-9	1-3	1-2	1-3
14	13 03-5	13 05-6	12 27-8	1-4	1-2	1-4	14	13 18-5	13 20-7	12 42-1	1-4	1-2	1-4
15	13 03-8	13 05-9	12 28-0	1-5	1-3	1-5	15	13 18-8	13 20-9	12 42-4	1-5	1-3	1-5
16	13 04-0	13 06-1	12 28-3	1-6	1-4	1-6	16	13 19-0	13 21-2	12 42-6	1-6	1-4	1-6
17	13 04-3	13 06-4	12 28-5	1-7	1-5	1-7	17	13 19-3	13 21-4	12 42-8	1-7	1-5	1-7
18	13 04-5	13 06-6	12 28-8	1-8	1-6	1-8	18	13 19-5	13 21-7	12 43-1	1-8	1-6	1-8
19	13 04-8	13 06-9	12 29-0	1-9	1-7	1-9	19	13 19-8	13 21-9	12 43-3	1-9	1-7	1-9
20	13 05-0	13 07-1	12 29-2	2-0	1-8	2-0	20	13 20-0	13 22-2	12 43-6	2-0	1-8	2-0
21	13 05-3	13 07-4	12 29-5	2-1	1-8	2-1	21	13 20-3	13 22-4	12 43-8	2-1	1-9	2-1
22	13 05-5	13 07-7	12 29-7	2-2	1-9	2-2	22	13 20-5	13 22-7	12 44-0	2-2	2-0	2-2
23	13 05-8	13 07-9	12 30-0	2-3	2-0	2-3	23	13 20-8	13 22-9	12 44-3	2-3	2-1	2-3
24	13 06-0	13 08-2	12 30-2	2-4	2-1	2-4	24	13 21-0	13 23-2	12 44-5	2-4	2-1	2-4
25	13 06-3	13 08-4	12 30-4	2-5	2-2	2-5	25	13 21-3	13 23-4	12 44-7	2-5	2-2	2-5
26	13 06-5	13 08-7	12 30-7	2-6	2-3	2-6	26	13 21-5	13 23-7	12 45-0	2-6	2-3	2-6
27	13 06-8	13 08-9	12 30-9	2-7	2-4	2-7	27	13 21-8	13 23-9	12 45-2	2-7	2-4	2-7
28	13 07-0	13 09-2	12 31-1	2-8	2-5	2-8	28	13 22-0	13 24-2	12 45-5	2-8	2-5	2-8
29	13 07-3	13 09-4	12 31-4	2-9	2-5	2-9	29	13 22-3	13 24-4	12 45-7	2-9	2-6	2-9
30	13 07-5	13 09-7	12 31-6	3-0	2-6	3-0	30	13 22-5	13 24-7	12 45-9	3-0	2-7	3-0
31	13 07-8	13 09-9	12 31-9	3-1	2-7	3-1	31	13 22-8	13 24-9	12 46-2	3-1	2-8	3-1
32	13 08-0	13 10-2	12 32-1	3-2	2-8	3-2	32	13 23-0	13 25-2	12 46-4	3-2	2-9	3-2
33	13 08-3	13 10-4	12 32-3	3-3	2-9	3-3	33	13 23-3	13 25-4	12 46-7	3-3	2-9	3-3
34	13 08-5	13 10-7	12 32-6	3-4	3-0	3-4	34	13 23-5	13 25-7	12 46-9	3-4	3-0	3-4
35	13 08-8	13 10-9	12 32-8	3-5	3-1	3-5	35	13 23-8	13 26-0	12 47-1	3-5	3-1	3-5
36	13 09-0	13 11-2	12 33-1	3-6	3-2	3-6	36	13 24-0	13 26-2	12 47-4	3-6	3-2	3-6
37	13 09-3	13 11-4	12 33-3	3-7	3-2	3-7	37	13 24-3	13 26-5	12 47-6	3-7	3-3	3-7
38	13 09-5	13 11-7	12 33-5	3-8	3-3	3-8	38	13 24-5	13 26-7	12 47-9	3-8	3-4	3-8
39	13 09-8	13 11-9	12 33-8	3-9	3-4	3-9	39	13 24-8	13 27-0	12 48-1	3-9	3-5	3-9
40	13 10-0	13 12-2	12 34-0	4-0	3-5	4-0	40	13 25-0	13 27-2	12 48-3	4-0	3-6	4-0
41	13 10-3	13 12-4	12 34-2	4-1	3-6	4-1	41	13 25-3	13 27-5	12 48-6	4-1	3-7	4-1
42	13 10-5	13 12-7	12 34-5	4-2	3-7	4-2	42	13 25-5	13 27-7	12 48-8	4-2	3-7	4-2
43	13 10-8	13 12-9	12 34-7	4-3	3-8	4-3	43	13 25-8	13 28-0	12 49-0	4-3	3-8	4-3
44	13 11-0	13 13-2	12 35-0	4-4	3-9	4-4	44	13 26-0	13 28-2	12 49-3	4-4	3-9	4-4
45	13 11-3	13 13-4	12 35-2	4-5	3-9	4-5	45	13 26-3	13 28-5	12 49-5	4-5	4-0	4-5
46	13 11-5	13 13-7	12 35-4	4-6	4-0	4-6	46	13 26-5	13 28-7	12 49-8	4-6	4-1	4-6
47	13 11-8	13 13-9	12 35-7	4-7	4-1	4-7	47	13 26-8	13 29-0	12 50-0	4-7	4-2	4-7
48	13 12-0	13 14-2	12 35-9	4-8	4-2	4-8	48	13 27-0	13 29-2	12 50-2	4-8	4-3	4-8
49	13 12-3	13 14-4	12 36-2	4-9	4-3	4-9	49	13 27-3	13 29-5	12 50-5	4-9	4-4	4-9
50	13 12-5	13 14-7	12 36-4	5-0	4-4	5-0	50	13 27-5	13 29-7	12 50-7	5-0	4-5	5-0
51	13 12-8	13 14-9	12 36-6	5-1	4-5	5-1	51	13 27-8	13 30-0	12 51-0	5-1	4-5	5-1
52	13 13-0	13 15-2	12 36-9	5-2	4-6	5-2	52	13 28-0	13 30-2	12 51-2	5-2	4-6	5-2
53	13 13-3	13 15-4	12 37-1	5-3	4-6	5-3	53	13 28-3	13 30-5	12 51-4	5-3	4-7	5-3
54	13 13-5	13 15-7	12 37-4	5-4	4-7	5-4	54	13 28-5	13 30-7	12 51-7	5-4	4-8	5-4
55	13 13-8	13 15-9	12 37-6	5-5	4-8	5-5	55	13 28-8	13 31-0	12 51-9	5-5	4-9	5-5
56	13 14-0	13 16-2	12 37-8	5-6	4-9	5-6	56	13 29-0	13 31-2	12 52-1	5-6	5-0	5-6
57	13 14-3	13 16-4	12 38-1	5-7	5-0	5-7	57	13 29-3	13 31-5	12 52-4	5-7	5-1	5-7
58	13 14-5	13 16-7	12 38-3	5-8	5-1	5-8	58	13 29-5	13 31-7	12 52-6	5-8	5-2	5-8
59	13 14-8	13 16-9	12 38-5	5-9	5-2	5-9	59	13 29-8	13 32-0	12 52-9	5-9	5-3	5-9
60	13 15-0	13 17-2	12 38-8	6-0	5-3	6-0	60	13 30-0	13 32-2	12 53-1	6-0	5-4	6-0

54	SUN PLANETS	ARIES	MOON	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ
$\frac{v}{d}$	$\frac{v}{d}$	$\frac{v}{d}$	$\frac{v}{d}$	$\frac{v}{d}$	$\frac{v}{d}$	$\frac{v}{d}$
00	13 30-0	13 32-2	12 53-1	0-0	0-0	6-0 5-5 12-0 10-9
01	13 30-3	13 32-5	12 53-3	0-1	0-1	6-1 5-5 12-1 11-0
02	13 30-6	13 32-7	12 53-6	0-2	0-2	6-2 5-6 12-2 11-1
03	13 30-8	13 33-0	12 53-8	0-3	0-3	6-3 5-7 12-3 11-2
04	13 31-0	13 33-2	12 54-1	0-4	0-4	6-4 5-8 12-4 11-3
05	13 31-3	13 33-5	12 54-3	0-5	0-5	6-5 5-9 12-5 11-4
06	13 31-5	13 33-7	12 54-5	0-6	0-5	6-6 6-0 12-6 11-4
07	13 31-8	13 34-0	12 54-8	0-7	0-6	6-7 6-1 12-7 11-5
08	13 32-0	13 34-2	12 55-0	0-8	0-7	6-8 6-2 12-8 11-6
09	13 32-3	13 34-5	12 55-2	0-9	0-8	6-9 6-3 12-9 11-7
10	13 32-5	13 34-7	12 55-5	1-0	0-9	7-0 6-4 13-0 11-8
11	13 32-8	13 35-0	12 55-7	1-1	1-0	7-1 6-4 13-1 11-9
12	13 33-0	13 35-2	12 56-0	1-2	1-1	7-2 6-5 13-2 12-0
13	13 33-3	13 35-5	12 56-2	1-3	1-2	7-3 6-6 13-3 12-1
14	13 33-5	13 35-7	12 56-4	1-4	1-3	7-4 6-7 13-4 12-2
15	13 33-8	13 36-0	12 56-7	1-5	1-4	7-5 6-8 13-5 12-3
16	13 34-0	13 36-2	12 56-9	1-6	1-5	7-6 6-9 13-6 12-4
17	13 34-3	13 36-5	12 57-2	1-7	1-5	7-7 7-0 13-7 12-4
18	13 34-5	13 36-7	12 57-4	1-8	1-6	7-8 7-1 13-8 12-5
19	13 34-8	13 37-0	12 57-6	1-9	1-7	7-9 7-2 13-9 12-6
20	13 35-0	13 37-2	12 57-9	2-0	1-8	8-0 7-3 14-0 12-7
21	13 35-3	13 37-5	12 58-1	2-1	1-9	8-1 7-4 14-1 12-8
22	13 35-5	13 37-7	12 58-3	2-2	2-0	8-2 7-4 14-2 12-9
23	13 35-8	13 38-0	12 58-6	2-3	2-1	8-3 7-5 14-3 13-0
24	13 36-0	13 38-2	12 58-8	2-4	2-2	8-4 7-6 14-4 13-1
25	13 36-3	13 38-5	12 59-1	2-5	2-3	8-5 7-7 14-5 13-2
26	13 36-5	13 38-7	12 59-3	2-6	2-4	8-6 7-8 14-6 13-3
27	13 36-8	13 39-0	12 59-5	2-7	2-5	8-7 7-9 14-7 13-4
28	13 37-0	13 39-2	12 59-8	2-8	2-5	8-8 8-0 14-8 13-4
29	13 37-3	13 39-5	13 00-0	2-9	2-6	8-9 8-1 14-9 13-5
30	13 37-5	13 39-7	13 00-3	3-0	2-7	9-0 8-2 15-0 13-6
31	13 37-8	13 40-0	13 00-5	3-1	2-8	9-1 8-3 15-1 13-7
32	13 38-0	13 40-2	13 00-7	3-2	2-9	9-2 8-4 15-2 13-8
33	13 38-3	13 40-5	13 01-0	3-3	3-0	9-3 8-4 15-3 13-9
34	13 38-5	13 40-7	13 01-2	3-4	3-1	9-4 8-5 15-4 14-0
35	13 38-8	13 41-0	13 01-5	3-5	3-2	9-5 8-6 15-5 14-1
36	13 39-0	13 41-2	13 01-7	3-6	3-3	9-6 8-7 15-6 14-2
37	13 39-3	13 41-5	13 01-9	3-7	3-4	9-7 8-8 15-7 14-3
38	13 39-5	13 41-7	13 02-2	3-8	3-5	9-8 8-9 15-8 14-4
39	13 39-8	13 42-0	13 02-4	3-9	3-5	9-9 9-0 15-9 14-4
40	13 40-0	13 42-2	13 02-6	4-0	3-6	10-0 9-1 16-0 14-5
41	13 40-3	13 42-5	13 02-9	4-1	3-7	10-1 9-2 16-1 14-6
42	13 40-5	13 42-7	13 03-1	4-2	3-8	10-2 9-3 16-2 14-7
43	13 40-8	13 43-0	13 03-4	4-3	3-9	10-3 9-4 16-3 14-8
44	13 41-0	13 43-2	13 03-6	4-4	4-0	10-4 9-4 16-4 14-9
45	13 41-3	13 43-5	13 03-8	4-5	4-1	10-5 9-5 16-5 15-0
46	13 41-5	13 43-7	13 04-1	4-6	4-2	10-6 9-6 16-6 15-1
47	13 41-8	13 44-0	13 04-3	4-7	4-3	10-7 9-7 16-7 15-2
48	13 42-0	13 44-3	13 04-6	4-8	4-4	10-8 9-8 16-8 15-3
49	13 42-3	13 44-5	13 04-8	4-9	4-5	10-9 9-9 16-9 15-4
50	13 42-5	13 44-8	13 05-0	5-0	4-5	11-0 10-0 17-0 15-4
51	13 42-8	13 45-0	13 05-3	5-1	4-6	11-1 10-1 17-1 15-5
52	13 43-0	13 45-3	13 05-5	5-2	4-7	11-2 10-2 17-2 15-6
53	13 43-3	13 45-5	13 05-7	5-3	4-8	11-3 10-3 17-3 15-7
54	13 43-5	13 45-8	13 06-0	5-4	4-9	11-4 10-4 17-4 15-8
55	13 43-8	13 46-0	13 06-2	5-5	5-0	11-5 10-4 17-5 15-9
56	13 44-0	13 46-3	13 06-5	5-6	5-1	11-6 10-5 17-6 16-0
57	13 44-3	13 46-5	13 06-7	5-7	5-2	11-7 10-6 17-7 16-1
58	13 44-5	13 46-8	13 06-9	5-8	5-3	11-8 10-7 17-8 16-2
59	13 44-8	13 47-0	13 07-2	5-9	5-4	11-9 10-8 17-9 16-3
60	13 45-0	13 47-3	13 07-4	6-0	5-5	12-0 10-9 18-0 16-4

55	SUN PLANETS	ARIES	MOON	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ	$\frac{v}{d}$ or Corr ⁿ
$\frac{v}{d}$	$\frac{v}{d}$	$\frac{v}{d}$	$\frac{v}{d}$	$\frac{v}{d}$	$\frac{v}{d}$	$\frac{v}{d}$
00	13 45-0	13 47-3	13 07-4	0-0	0-0	6-0 5-6 12-0 11-1
01	13 45-3	13 47-5	13 07-7	0-1	0-1	6-1 5-6 12-1 11-2
02	13 45-5	13 47-8	13 07-9	0-2	0-2	6-2 5-7 12-2 11-3
03	13 45-8	13 48-0	13 08-1	0-3	0-3	6-3 5-8 12-3 11-4
04	13 46-0	13 48-3	13 08-4	0-4	0-4	6-4 5-9 12-4 11-5
05	13 46-3	13 48-5	13 08-6	0-5	0-5	6-5 6-0 12-5 11-6
06	13 46-5	13 48-8	13 08-8	0-6	0-6	6-6 6-1 12-6 11-7
07	13 46-8	13 49-0	13 09-1	0-7	0-6	6-7 6-2 12-7 11-7
08	13 47-0	13 49-3	13 09-3	0-8	0-7	6-8 6-3 12-8 11-8
09	13 47-3	13 49-5	13 09-6	0-9	0-8	6-9 6-4 12-9 11-9
10	13 47-5	13 49-8	13 09-8	1-0	0-9	7-0 6-5 13-0 12-0
11	13 47-8	13 50-0	13 10-0	1-1	1-0	7-1 6-6 13-1 12-1
12	13 48-0	13 50-3	13 10-3	1-2	1-1	7-2 6-7 13-2 12-2
13	13 48-3	13 50-5	13 10-5	1-3	1-2	7-3 6-8 13-3 12-3
14	13 48-5	13 50-8	13 10-8	1-4	1-3	7-4 6-8 13-4 12-4
15	13 48-8	13 51-0	13 11-0	1-5	1-4	7-5 6-9 13-5 12-5
16	13 49-0	13 51-3	13 11-2	1-6	1-5	7-6 7-0 13-6 12-6
17	13 49-3	13 51-5	13 11-5	1-7	1-6	7-7 7-1 13-7 12-7
18	13 49-5	13 51-8	13 11-7	1-8	1-7	7-8 7-2 13-8 12-8
19	13 49-8	13 52-0	13 12-0	1-9	1-8	7-9 7-3 13-9 12-9
20	13 50-0	13 52-3	13 12-2	2-0	1-9	8-0 7-4 14-0 13-0
21	13 50-3	13 52-5	13 12-4	2-1	1-9	8-1 7-5 14-1 13-0
22	13 50-5	13 52-8	13 12-7	2-2	2-0	8-2 7-6 14-2 13-1
23	13 50-8	13 53-0	13 12-9	2-3	2-1	8-3 7-7 14-3 13-2
24	13 51-0	13 53-3	13 13-1	2-4	2-2	8-4 7-8 14-4 13-3
25	13 51-3	13 53-5	13 13-4	2-5	2-3	8-5 7-9 14-5 13-4
26	13 51-5	13 53-8	13 13-6	2-6	2-4	8-6 8-0 14-6 13-5
27	13 51-8	13 54-0	13 13-9	2-7	2-5	8-7 8-0 14-7 13-6
28	13 52-0	13 54-3	13 14-1	2-8	2-6	8-8 8-1 14-8 13-7
29	13 52-3	13 54-5	13 14-3	2-9	2-7	8-9 8-2 14-9 13-8
30	13 52-5	13 54-8	13 14-6	3-0	2-8	9-0 8-3 15-0 13-9
31	13 52-8	13 55-0	13 14-8	3-1	2-9	9-1 8-4 15-1 14-0
32	13 53-0	13 55-3	13 15-1	3-2	3-0	9-2 8-5 15-2 14-1
33	13 53-3	13 55-5	13 15-3	3-3	3-1	9-3 8-6 15-3 14-2
34	13 53-5	13 55-8	13 15-5	3-4	3-1	9-4 8-7 15-4 14-2
35	13 53-8	13 56-0	13 15-8	3-5	3-2	9-5 8-8 15-5 14-3
36	13 54-0	13 56-3	13 16-0	3-6	3-3	9-6 8-9 15-6 14-4
37	13 54-3	13 56-5	13 16-2	3-7	3-4	9-7 9-0 15-7 14-5
38	13 54-5	13 56-8	13 16-5	3-8	3-5	9-8 9-1 15-8 14-6
39	13 54-8	13 57-0	13 16-7	3-9	3-6	9-9 9-2 15-9 14-7
40	13 55-0	13 57-3	13 17-0	4-0	3-7	10-0 9-3 16-0 14-8
41	13 55-3	13 57-5	13 17-2	4-1	3-8	10-1 9-3 16-1 14-9
42	13 55-5	13 57-8	13 17-4	4-2	3-9	10-2 9-4 16-2 15-0
43	13 55-8	13 58-0	13 17-7	4-3	4-0	10-3 9-5 16-3 15-1
44	13 56-0	13 58-3	13 17-9	4-4	4-1	10-4 9-6 16-4 15-2
45	13 56-3	13 58-5	13 18-2	4-5	4-2	10-5 9-7 16-5 15-3
46	13 56-5	13 58-8	13 18-4	4-6	4-3	10-6 9-8 16-6 15-4
47	13 56-8	13 59-0	13 18-6	4-7	4-3	10-7 9-9 16-7 15-4
48	13 57-0	13 59-3	13 18-9	4-8	4-4	10-8 10-0 16-8 15-5
49	13 57-3	13 59-5	13 19-1	4-9	4-5	10-9 10-1 16-9 15-6
50	13 57-5	13 59-8	13 19-3	5-0	4-6	11-0 10-2 17-0 15-7
51	13 57-8	14 00-0	13 19-6	5-1	4-7	11-1 10-3 17-1 15-8
52	13 58-0	14 00-3	13 19-8	5-2	4-8	11-2 10-4 17-2 15-9
53	13 58-3	14 00-5	13 20-1	5-3	4-9	11-3 10-5 17-3 16-0
54	13 58-5	14 00-8	13 20-3	5-4	5-0	11-4 10-5 17-4 16-1
55	13 58-8	14 01-0	13 20-5	5-5	5-1	11-5 10-6 17-5 16-2
56	13 59-0	14 01-3	13 20-8	5-6	5-2	11-6 10-7 17-6 16-3
57	13 59-3	14 01-5	13 21-0	5-7	5-3	11-7 10-8 17-7 16-4
58	13 59-5	14 01-8	13 21-3	5-8	5-4	11-8 10-9 17-8 16-5
59	13 59-8	14 02-0	13 21-5	5-9	5-5	11-9 11-0 17-9 16-6
60	14 00-0	14 02-3	13 21-7	6-0	5-6	12-0 11-1 18-0 16-7

56 ^m	SUN PLANETS	ARIES	MOON	° or d	° or d	° or d
s	°	°	°	°	°	°
00	14 00-0	14 02-3	13 21-7	0-0 0-0	6-0 5-7	12-0 11-3
01	14 00-3	14 02-6	13 22-0	0-1 0-1	6-1 5-7	12-1 11-4
02	14 00-5	14 02-8	13 22-2	0-2 0-2	6-2 5-8	12-2 11-5
03	14 00-8	14 03-1	13 22-4	0-3 0-3	6-3 5-9	12-3 11-6
04	14 01-0	14 03-3	13 22-7	0-4 0-4	6-4 6-0	12-4 11-7
05	14 01-3	14 03-6	13 22-9	0-5 0-5	6-5 6-1	12-5 11-8
06	14 01-5	14 03-8	13 23-2	0-6 0-6	6-6 6-2	12-6 11-9
07	14 01-8	14 04-1	13 23-4	0-7 0-7	6-7 6-3	12-7 12-0
08	14 02-0	14 04-3	13 23-6	0-8 0-8	6-8 6-4	12-8 12-1
09	14 02-3	14 04-6	13 23-9	0-9 0-8	6-9 6-5	12-9 12-1
10	14 02-5	14 04-8	13 24-1	1-0 0-9	7-0 6-6	13-0 12-2
11	14 02-8	14 05-1	13 24-4	1-1 1-0	7-1 6-7	13-1 12-3
12	14 03-0	14 05-3	13 24-6	1-2 1-1	7-2 6-8	13-2 12-4
13	14 03-3	14 05-6	13 24-8	1-3 1-2	7-3 6-9	13-3 12-5
14	14 03-5	14 05-8	13 25-1	1-4 1-3	7-4 7-0	13-4 12-6
15	14 03-8	14 06-1	13 25-3	1-5 1-4	7-5 7-1	13-5 12-7
16	14 04-0	14 06-3	13 25-6	1-6 1-5	7-6 7-2	13-6 12-8
17	14 04-3	14 06-6	13 25-8	1-7 1-6	7-7 7-3	13-7 12-9
18	14 04-5	14 06-8	13 26-0	1-8 1-7	7-8 7-3	13-8 13-0
19	14 04-8	14 07-1	13 26-3	1-9 1-8	7-9 7-4	13-9 13-1
20	14 05-0	14 07-3	13 26-5	2-0 1-9	8-0 7-5	14-0 13-2
21	14 05-3	14 07-6	13 26-7	2-1 2-0	8-1 7-6	14-1 13-3
22	14 05-5	14 07-8	13 27-0	2-2 2-1	8-2 7-7	14-2 13-4
23	14 05-8	14 08-1	13 27-2	2-3 2-2	8-3 7-8	14-3 13-5
24	14 06-0	14 08-3	13 27-5	2-4 2-3	8-4 7-9	14-4 13-6
25	14 06-3	14 08-6	13 27-7	2-5 2-4	8-5 8-0	14-5 13-7
26	14 06-5	14 08-8	13 27-9	2-6 2-4	8-6 8-1	14-6 13-7
27	14 06-8	14 09-1	13 28-2	2-7 2-5	8-7 8-2	14-7 13-8
28	14 07-0	14 09-3	13 28-4	2-8 2-6	8-8 8-3	14-8 13-9
29	14 07-3	14 09-6	13 28-7	2-9 2-7	8-9 8-4	14-9 14-0
30	14 07-5	14 09-8	13 28-9	3-0 2-8	9-0 8-5	15-0 14-1
31	14 07-8	14 10-1	13 29-1	3-1 2-9	9-1 8-6	15-1 14-2
32	14 08-0	14 10-3	13 29-4	3-2 3-0	9-2 8-7	15-2 14-3
33	14 08-3	14 10-6	13 29-6	3-3 3-1	9-3 8-8	15-3 14-4
34	14 08-5	14 10-8	13 29-8	3-4 3-2	9-4 8-9	15-4 14-5
35	14 08-8	14 11-1	13 30-1	3-5 3-3	9-5 8-9	15-5 14-6
36	14 09-0	14 11-3	13 30-3	3-6 3-4	9-6 9-0	15-6 14-7
37	14 09-3	14 11-6	13 30-6	3-7 3-5	9-7 9-1	15-7 14-8
38	14 09-5	14 11-8	13 30-8	3-8 3-6	9-8 9-2	15-8 14-9
39	14 09-8	14 12-1	13 31-0	3-9 3-7	9-9 9-3	15-9 15-0
40	14 10-0	14 12-3	13 31-3	4-0 3-8	10-0 9-4	16-0 15-1
41	14 10-3	14 12-6	13 31-5	4-1 3-9	10-1 9-5	16-1 15-2
42	14 10-5	14 12-8	13 31-8	4-2 4-0	10-2 9-6	16-2 15-3
43	14 10-8	14 13-1	13 32-0	4-3 4-0	10-3 9-7	16-3 15-3
44	14 11-0	14 13-3	13 32-2	4-4 4-1	10-4 9-8	16-4 15-4
45	14 11-3	14 13-6	13 32-5	4-5 4-2	10-5 9-9	16-5 15-5
46	14 11-5	14 13-8	13 32-7	4-6 4-3	10-6 10-0	16-6 15-6
47	14 11-8	14 14-1	13 32-9	4-7 4-4	10-7 10-1	16-7 15-7
48	14 12-0	14 14-3	13 33-2	4-8 4-5	10-8 10-2	16-8 15-8
49	14 12-3	14 14-6	13 33-4	4-9 4-6	10-9 10-3	16-9 15-9
50	14 12-5	14 14-8	13 33-7	5-0 4-7	11-0 10-4	17-0 16-0
51	14 12-8	14 15-1	13 33-9	5-1 4-8	11-1 10-5	17-1 16-1
52	14 13-0	14 15-3	13 34-1	5-2 4-9	11-2 10-5	17-2 16-2
53	14 13-3	14 15-6	13 34-4	5-3 5-0	11-3 10-6	17-3 16-3
54	14 13-5	14 15-8	13 34-6	5-4 5-1	11-4 10-7	17-4 16-4
55	14 13-8	14 16-1	13 34-9	5-5 5-2	11-5 10-8	17-5 16-5
56	14 14-0	14 16-3	13 35-1	5-6 5-3	11-6 10-9	17-6 16-6
57	14 14-3	14 16-6	13 35-3	5-7 5-4	11-7 11-0	17-7 16-7
58	14 14-5	14 16-8	13 35-6	5-8 5-5	11-8 11-1	17-8 16-8
59	14 14-8	14 17-1	13 35-8	5-9 5-6	11-9 11-2	17-9 16-9
60	14 15-0	14 17-3	13 36-1	6-0 5-7	12-0 11-3	18-0 17-0

57 ^m	SUN PLANETS	ARIES	MOON	° or d	° or d	° or d
s	°	°	°	°	°	°
00	14 15-0	14 17-3	13 36-1	0-0 0-0	6-0 5-8	12-0 11-5
01	14 15-3	14 17-6	13 36-3	0-1 0-1	6-1 5-8	12-1 11-6
02	14 15-5	14 17-8	13 36-5	0-2 0-2	6-2 5-9	12-2 11-7
03	14 15-8	14 18-1	13 36-8	0-3 0-3	6-3 6-0	12-3 11-8
04	14 16-0	14 18-3	13 37-0	0-4 0-4	6-4 6-1	12-4 11-9
05	14 16-3	14 18-6	13 37-2	0-5 0-5	6-5 6-2	12-5 12-0
06	14 16-5	14 18-8	13 37-5	0-6 0-6	6-6 6-3	12-6 12-1
07	14 16-8	14 19-1	13 37-7	0-7 0-7	6-7 6-4	12-7 12-2
08	14 17-0	14 19-3	13 38-0	0-8 0-8	6-8 6-5	12-8 12-3
09	14 17-3	14 19-6	13 38-2	0-9 0-9	6-9 6-6	12-9 12-4
10	14 17-5	14 19-8	13 38-4	1-0 1-0	7-0 6-7	13-0 12-5
11	14 17-8	14 20-1	13 38-7	1-1 1-1	7-1 6-8	13-1 12-6
12	14 18-0	14 20-3	13 38-9	1-2 1-2	7-2 6-9	13-2 12-7
13	14 18-3	14 20-6	13 39-2	1-3 1-2	7-3 7-0	13-3 12-7
14	14 18-5	14 20-9	13 39-4	1-4 1-3	7-4 7-1	13-4 12-8
15	14 18-8	14 21-1	13 39-6	1-5 1-4	7-5 7-2	13-5 12-9
16	14 19-0	14 21-4	13 39-9	1-6 1-5	7-6 7-3	13-6 13-0
17	14 19-3	14 21-6	13 40-1	1-7 1-6	7-7 7-4	13-7 13-1
18	14 19-5	14 21-9	13 40-3	1-8 1-7	7-8 7-5	13-8 13-2
19	14 19-8	14 22-1	13 40-6	1-9 1-8	7-9 7-6	13-9 13-3
20	14 20-0	14 22-4	13 40-8	2-0 1-9	8-0 7-7	14-0 13-4
21	14 20-3	14 22-6	13 41-1	2-1 2-0	8-1 7-8	14-1 13-5
22	14 20-5	14 22-9	13 41-3	2-2 2-1	8-2 7-9	14-2 13-6
23	14 20-8	14 23-1	13 41-5	2-3 2-2	8-3 8-0	14-3 13-7
24	14 21-0	14 23-4	13 41-8	2-4 2-3	8-4 8-1	14-4 13-8
25	14 21-3	14 23-6	13 42-0	2-5 2-4	8-5 8-1	14-5 13-9
26	14 21-5	14 23-9	13 42-3	2-6 2-5	8-6 8-2	14-6 14-0
27	14 21-8	14 24-1	13 42-5	2-7 2-6	8-7 8-3	14-7 14-1
28	14 22-0	14 24-4	13 42-7	2-8 2-7	8-8 8-4	14-8 14-2
29	14 22-3	14 24-6	13 43-0	2-9 2-8	8-9 8-5	14-9 14-3
30	14 22-5	14 24-9	13 43-2	3-0 2-9	9-0 8-6	15-0 14-4
31	14 22-8	14 25-1	13 43-4	3-1 3-0	9-1 8-7	15-1 14-5
32	14 23-0	14 25-4	13 43-7	3-2 3-1	9-2 8-8	15-2 14-6
33	14 23-3	14 25-6	13 43-9	3-3 3-2	9-3 8-9	15-3 14-7
34	14 23-5	14 25-9	13 44-2	3-4 3-3	9-4 9-0	15-4 14-8
35	14 23-8	14 26-1	13 44-4	3-5 3-4	9-5 9-1	15-5 14-9
36	14 24-0	14 26-4	13 44-6	3-6 3-5	9-6 9-2	15-6 15-0
37	14 24-3	14 26-6	13 44-9	3-7 3-5	9-7 9-3	15-7 15-0
38	14 24-5	14 26-9	13 45-1	3-8 3-6	9-8 9-4	15-8 15-1
39	14 24-8	14 27-1	13 45-4	3-9 3-7	9-9 9-5	15-9 15-2
40	14 25-0	14 27-4	13 45-6	4-0 3-8	10-0 9-6	16-0 15-3
41	14 25-3	14 27-6	13 45-8	4-1 3-9	10-1 9-7	16-1 15-4
42	14 25-5	14 27-9	13 46-1	4-2 4-0	10-2 9-8	16-2 15-5
43	14 25-8	14 28-1	13 46-3	4-3 4-1	10-3 9-9	16-3 15-6
44	14 26-0	14 28-4	13 46-5	4-4 4-2	10-4 10-0	16-4 15-7
45	14 26-3	14 28-6	13 46-8	4-5 4-3	10-5 10-1	16-5 15-8
46	14 26-5	14 28-9	13 47-0	4-6 4-4	10-6 10-2	16-6 15-9
47	14 26-8	14 29-1	13 47-3	4-7 4-5	10-7 10-3	16-7 16-0
48	14 27-0	14 29-4	13 47-5	4-8 4-6	10-8 10-4	16-8 16-1
49	14 27-3	14 29-6	13 47-7	4-9 4-7	10-9 10-4	16-9 16-2
50	14 27-5	14 29-9	13 48-0	5-0 4-8	11-0 10-5	17-0 16-3
51	14 27-8	14 30-1	13 48-2	5-1 4-9	11-1 10-6	17-1 16-4
52	14 28-0	14 30-4	13 48-5	5-2 5-0	11-2 10-7	17-2 16-5
53	14 28-3	14 30-6	13 48-7	5-3 5-1	11-3 10-8	17-3 16-6
54	14 28-5	14 30-9	13 48-9	5-4 5-2	11-4 10-9	17-4 16-7
55	14 28-8	14 31-1	13 49-2	5-5 5-3	11-5 11-0	17-5 16-8
56	14 29-0	14 31-4	13 49-4	5-6 5-4	11-6 11-1	17-6 16-9
57	14 29-3	14 31-6	13 49-7	5-7 5-5	11-7 11-2	17-7 17-0
58	14 29-5	14 31-9	13 49-9	5-8 5-6	11-8 11-3	17-8 17-1
59	14 29-8	14 32-1	13 50-1	5-9 5-7	11-9 11-4	17-9 17-2
60	14 30-0	14 32-4	13 50-4	6-0 5-8	12-0 11-5	18-0 17-3

58 ^m	SUN PLANETS	ARIES	MOON	ν or d	Corr ⁿ	ν or d	Corr ⁿ	ν or d	Corr ⁿ
s	o	/	o	/	o	/	o	/	
00	14 30-0	14 32-4	13 50-4	0-0	0-0	6-0	5-9	12-0	11-7
01	14 30-3	14 32-6	13 50-6	0-1	0-1	6-1	5-9	12-1	11-8
02	14 30-5	14 32-9	13 50-8	0-2	0-2	6-2	6-0	12-2	11-9
03	14 30-8	14 33-1	13 51-1	0-3	0-3	6-3	6-1	12-3	12-0
04	14 31-0	14 33-4	13 51-3	0-4	0-4	6-4	6-2	12-4	12-1
05	14 31-3	14 33-6	13 51-6	0-5	0-5	6-5	6-3	12-5	12-2
06	14 31-5	14 33-9	13 51-8	0-6	0-6	6-6	6-4	12-6	12-3
07	14 31-8	14 34-1	13 52-0	0-7	0-7	6-7	6-5	12-7	12-4
08	14 32-0	14 34-4	13 52-3	0-8	0-8	6-8	6-6	12-8	12-5
09	14 32-3	14 34-6	13 52-5	0-9	0-9	6-9	6-7	12-9	12-6
10	14 32-5	14 34-9	13 52-8	1-0	1-0	7-0	6-8	13-0	12-7
11	14 32-8	14 35-1	13 53-0	1-1	1-1	7-1	6-9	13-1	12-8
12	14 33-0	14 35-4	13 53-2	1-2	1-2	7-2	7-0	13-2	12-9
13	14 33-3	14 35-6	13 53-5	1-3	1-3	7-3	7-1	13-3	13-0
14	14 33-5	14 35-9	13 53-7	1-4	1-4	7-4	7-2	13-4	13-1
15	14 33-8	14 36-1	13 53-9	1-5	1-5	7-5	7-3	13-5	13-2
16	14 34-0	14 36-4	13 54-2	1-6	1-6	7-6	7-4	13-6	13-3
17	14 34-3	14 36-6	13 54-4	1-7	1-7	7-7	7-5	13-7	13-4
18	14 34-5	14 36-9	13 54-7	1-8	1-8	7-8	7-6	13-8	13-5
19	14 34-8	14 37-1	13 54-9	1-9	1-9	7-9	7-7	13-9	13-6
20	14 35-0	14 37-4	13 55-1	2-0	2-0	8-0	7-8	14-0	13-7
21	14 35-3	14 37-6	13 55-4	2-1	2-0	8-1	7-9	14-1	13-7
22	14 35-5	14 37-9	13 55-6	2-2	2-1	8-2	8-0	14-2	13-8
23	14 35-8	14 38-1	13 55-9	2-3	2-2	8-3	8-1	14-3	13-9
24	14 36-0	14 38-4	13 56-1	2-4	2-3	8-4	8-2	14-4	14-0
25	14 36-3	14 38-6	13 56-3	2-5	2-4	8-5	8-3	14-5	14-1
26	14 36-5	14 38-9	13 56-6	2-6	2-5	8-6	8-4	14-6	14-2
27	14 36-8	14 39-2	13 56-8	2-7	2-6	8-7	8-5	14-7	14-3
28	14 37-0	14 39-4	13 57-0	2-8	2-7	8-8	8-6	14-8	14-4
29	14 37-3	14 39-7	13 57-3	2-9	2-8	8-9	8-7	14-9	14-5
30	14 37-5	14 39-9	13 57-5	3-0	2-9	9-0	8-8	15-0	14-6
31	14 37-8	14 40-2	13 57-8	3-1	3-0	9-1	8-9	15-1	14-7
32	14 38-0	14 40-4	13 58-0	3-2	3-1	9-2	9-0	15-2	14-8
33	14 38-3	14 40-7	13 58-2	3-3	3-2	9-3	9-1	15-3	14-9
34	14 38-5	14 40-9	13 58-5	3-4	3-3	9-4	9-2	15-4	15-0
35	14 38-8	14 41-2	13 58-7	3-5	3-4	9-5	9-3	15-5	15-1
36	14 39-0	14 41-4	13 59-0	3-6	3-5	9-6	9-4	15-6	15-2
37	14 39-3	14 41-7	13 59-2	3-7	3-6	9-7	9-5	15-7	15-3
38	14 39-5	14 41-9	13 59-4	3-8	3-7	9-8	9-6	15-8	15-4
39	14 39-8	14 42-2	13 59-7	3-9	3-8	9-9	9-7	15-9	15-5
40	14 40-0	14 42-4	13 59-9	4-0	3-9	10-0	9-8	16-0	15-6
41	14 40-3	14 42-7	14 00-1	4-1	4-0	10-1	9-8	16-1	15-7
42	14 40-5	14 42-9	14 00-4	4-2	4-1	10-2	9-9	16-2	15-8
43	14 40-8	14 43-2	14 00-6	4-3	4-2	10-3	10-0	16-3	15-9
44	14 41-0	14 43-4	14 00-9	4-4	4-3	10-4	10-1	16-4	16-0
45	14 41-3	14 43-7	14 01-1	4-5	4-4	10-5	10-2	16-5	16-1
46	14 41-5	14 43-9	14 01-3	4-6	4-5	10-6	10-3	16-6	16-2
47	14 41-8	14 44-2	14 01-6	4-7	4-6	10-7	10-4	16-7	16-3
48	14 42-0	14 44-4	14 01-8	4-8	4-7	10-8	10-5	16-8	16-4
49	14 42-3	14 44-7	14 02-1	4-9	4-8	10-9	10-6	16-9	16-5
50	14 42-5	14 44-9	14 02-3	5-0	4-9	11-0	10-7	17-0	16-6
51	14 42-8	14 45-2	14 02-5	5-1	5-0	11-1	10-8	17-1	16-7
52	14 43-0	14 45-4	14 02-8	5-2	5-1	11-2	10-9	17-2	16-8
53	14 43-3	14 45-7	14 03-0	5-3	5-2	11-3	11-0	17-3	16-9
54	14 43-5	14 45-9	14 03-3	5-4	5-3	11-4	11-1	17-4	17-0
55	14 43-8	14 46-2	14 03-5	5-5	5-4	11-5	11-2	17-5	17-1
56	14 44-0	14 46-4	14 03-7	5-6	5-5	11-6	11-3	17-6	17-2
57	14 44-3	14 46-7	14 04-0	5-7	5-6	11-7	11-4	17-7	17-3
58	14 44-5	14 46-9	14 04-2	5-8	5-7	11-8	11-5	17-8	17-4
59	14 44-8	14 47-2	14 04-4	5-9	5-8	11-9	11-6	17-9	17-5
60	14 45-0	14 47-4	14 04-7	6-0	5-9	12-0	11-7	18-0	17-6

m 59	SUN PLANETS	ARIES	MOON	ν or d	Corr ⁿ	ν or d	Corr ⁿ	ν or d	Corr ⁿ
s	o	/	o	/	o	/	o	/	
00	14 45-0	14 47-4	14 04-7	0-0	0-0	6-0	6-0	12-0	11-9
01	14 45-3	14 47-7	14 04-9	0-1	0-1	6-1	6-0	12-1	12-0
02	14 45-5	14 47-9	14 05-2	0-2	0-2	6-2	6-1	12-2	12-1
03	14 45-8	14 48-2	14 05-4	0-3	0-3	6-3	6-2	12-3	12-2
04	14 46-0	14 48-4	14 05-6	0-4	0-4	6-4	6-3	12-4	12-3
05	14 46-3	14 48-7	14 05-9	0-5	0-5	6-5	6-4	12-5	12-4
06	14 46-5	14 48-9	14 06-1	0-6	0-6	6-6	6-5	12-6	12-5
07	14 46-8	14 49-2	14 06-4	0-7	0-7	6-7	6-6	12-7	12-6
08	14 47-0	14 49-4	14 06-6	0-8	0-8	6-8	6-7	12-8	12-7
09	14 47-3	14 49-7	14 06-8	0-9	0-9	6-9	6-8	12-9	12-8
10	14 47-5	14 49-9	14 07-1	1-0	1-0	7-0	6-9	13-0	12-9
11	14 47-8	14 50-2	14 07-3	1-1	1-1	7-1	7-0	13-1	13-0
12	14 48-0	14 50-4	14 07-5	1-2	1-2	7-2	7-1	13-2	13-1
13	14 48-3	14 50-7	14 07-8	1-3	1-3	7-3	7-2	13-3	13-2
14	14 48-5	14 50-9	14 08-0	1-4	1-4	7-4	7-3	13-4	13-3
15	14 48-8	14 51-2	14 08-3	1-5	1-5	7-5	7-4	13-5	13-4
16	14 49-0	14 51-4	14 08-5	1-6	1-6	7-6	7-5	13-6	13-5
17	14 49-3	14 51-7	14 08-7	1-7	1-7	7-7	7-6	13-7	13-6
18	14 49-5	14 51-9	14 09-0	1-8	1-8	7-8	7-7	13-8	13-7
19	14 49-8	14 52-2	14 09-2	1-9	1-9	7-9	7-8	13-9	13-8
20	14 50-0	14 52-4	14 09-5	2-0	2-0	8-0	7-9	14-0	13-9
21	14 50-3	14 52-7	14 09-7	2-1	2-1	8-1	8-0	14-1	14-0
22	14 50-5	14 52-9	14 09-9	2-2	2-2	8-2	8-1	14-2	14-1
23	14 50-8	14 53-2	14 10-2	2-3	2-3	8-3	8-2	14-3	14-2
24	14 51-0	14 53-4	14 10-4	2-4	2-4	8-4	8-3	14-4	14-3
25	14 51-3	14 53-7	14 10-6	2-5	2-5	8-5	8-4	14-5	14-4
26	14 51-5	14 53-9	14 10-9	2-6	2-6	8-6	8-5	14-6	14-5
27	14 51-8	14 54-2	14 11-1	2-7	2-7	8-7	8-6	14-7	14-6
28	14 52-0	14 54-4	14 11-4	2-8	2-8	8-8	8-7	14-8	14-7
29	14 52-3	14 54-7	14 11-6	2-9	2-9	8-9	8-8	14-9	14-8
30	14 52-5	14 54-9	14 11-8	3-0	3-0	9-0	8-9	15-0	14-9
31	14 52-8	14 55-2	14 12-1	3-1	3-1	9-1	9-0	15-1	15-0
32	14 53-0	14 55-4	14 12-3	3-2	3-2	9-2	9-1	15-2	15-1
33	14 53-3	14 55-7	14 12-6	3-3	3-3	9-3	9-2	15-3	15-2
34	14 53-5	14 55-9	14 12-8	3-4	3-4	9-4	9-3	15-4	15-3
35	14 53-8	14 56-2	14 13-0	3-5	3-5	9-5	9-4	15-5	15-4
36	14 54-0	14 56-4	14 13-3	3-6	3-6	9-6	9-5	15-6	15-5
37	14 54-3	14 56-7	14 13-5	3-7	3-7	9-7	9-6	15-7	15-6
38	14 54-5	14 56-9	14 13-8	3-8	3-8	9-8	9-7	15-8	15-7
39	14 54-8	14 57-2	14 14-0	3-9	3-9	9-9	9-8	15-9	15-8
40	14 55-0	14 57-5	14 14-2	4-0	4-0	10-0	9-9	16-0	15-9
41	14 55-3	14 57-7	14 14-5	4-1	4-1	10-1	10-0	16-1	16-0
42	14 55-5	14 58-0	14 14-7	4-2	4-2	10-2	10-1	16-2	16-1
43	14 55-8	14 58-2	14 14-9	4-3	4-3	10-3	10-2	16-3	16-2
44	14 56-0	14 58-5	14 15-2	4-4	4-4	10-4	10-3	16-4	16-3
45	14 56-3	14 58-7	14 15-4	4-5	4-5	10-5	10-4	16-5	16-4
46	14 56-5	14 59-0	14 15-7	4-6	4-6	10-6	10-5	16-6	16-5
47	14 56-8	14 59-2	14 15-9	4-7	4-7	10-7	10-6	16-7	16-6
48	14 57-0	14 59-5	14 16-1	4-8	4-8	10-8	10-7	16-8	16-7
49	14 57-3	14 59-7	14 16-4	4-9	4-9	10-9	10-8	16-9	16-8
50	14 57-5	15 00-0	14 16-6	5-0	5-0	11-0	10-9	17-0	16-9
51	14 57-8	15 00-2	14 16-9	5-1	5-1	11-1	11-0	17-1	17-0
52	14 58-0	15 00-5	14 17-1	5-2	5-2	11-2	11-1	17-2	17-1
53	14 58-3	15 00-7	14 17-3	5-3	5-3	11-3	11-2	17-3	17-2
54	14 58-5	15 01-0	14 17-6	5-4	5-4	11-4	11-3	17-4	17-3
55	14 58-8	15 01-2	14 17-8	5-5	5-5	11-5	11-4	17-5	17-4
56	14 59-0	15 01-5	14 18-0	5-6	5-6	11-6	11-5	17-6	17-5
57	14 59-3	15 01-7	14 18-3	5-7	5-7	11-7	11-6	17-7	17-6
58	14 59-5	15 02-0	14 18-5	5-8	5-8	11-8	11-7	17-8	17-7
59	14 59-8	15 02-2	14 18-8	5-9	5-9	11-9	11-8	17-9	17-8
60	15 00-0	15 02-5	14 19-0	6-0	6-0	12-0	11-9	18-0	17-9

TABLES FOR INTERPOLATING SUNRISE, MOONRISE, ETC.

TABLE I—FOR LATITUDE

Tabular Interval			Difference between the times for consecutive latitudes																
10°	5°	2°	5 ^m	10 ^m	15 ^m	20 ^m	25 ^m	30 ^m	35 ^m	40 ^m	45 ^m	50 ^m	55 ^m	60 ^m	1 ^h 05 ^m	1 ^h 10 ^m	1 ^h 15 ^m	1 ^h 20 ^m	
0	30	0 15	0 06	m	m	m	m	m	m	m	m	m	m	m	h	m	h	m	
0	30	0 15	0 06	0	0	1	1	1	1	2	2	2	2	2	0 02	0 02	0 02	0 02	
1	00	0 30	0 12	0	1	1	2	2	3	3	4	4	4	5	05	05	05	05	
1	30	0 45	0 18	1	1	2	3	3	4	4	5	5	6	7	07	07	07	07	
2	00	1 00	0 24	1	2	3	4	5	5	6	7	7	8	9	10	10	10	10	
2	30	1 15	0 30	1	2	4	5	6	7	8	9	9	10	11	12	12	13	13	
3	00	1 30	0 36	1	3	4	6	7	8	9	10	11	12	13	14	0 15	0 15	0 16	0 16
3	30	1 45	0 42	2	3	5	7	8	10	11	12	13	14	16	17	18	18	19	19
4	00	2 00	0 48	2	4	6	8	9	11	13	14	15	16	18	19	20	21	22	22
4	30	2 15	0 54	2	4	7	9	11	13	15	16	18	19	21	22	23	24	25	26
5	00	2 30	1 00	2	5	7	10	12	14	16	18	20	22	23	25	26	27	28	29
5	30	2 45	1 06	3	5	8	11	13	16	18	20	22	24	26	28	0 29	0 30	0 31	0 32
6	00	3 00	1 12	3	6	9	12	14	17	20	22	24	26	29	31	32	33	34	36
6	30	3 15	1 18	3	6	10	13	16	19	22	24	26	29	31	34	36	37	38	40
7	00	3 30	1 24	3	7	10	14	17	20	23	26	29	31	34	37	39	41	42	44
7	30	3 45	1 30	4	7	11	15	18	22	25	28	31	34	37	40	43	44	46	48
8	00	4 00	1 36	4	8	12	16	20	23	27	30	34	37	41	44	0 47	0 48	0 51	0 53
8	30	4 15	1 42	4	8	13	17	21	25	29	33	36	40	44	48	0 51	0 53	0 56	0 58
9	00	4 30	1 48	4	9	13	18	22	27	31	35	39	43	47	52	0 55	0 58	1 01	1 04
9	30	4 45	1 54	5	9	14	19	24	28	33	38	42	47	51	56	1 00	1 04	1 08	1 12
10	00	5 00	2 00	5	10	15	20	25	30	35	40	45	50	55	60	1 05	1 10	1 15	1 20

Table I is for interpolating the L.M.T. of sunrise, twilight, moonrise, etc., for latitude. It is to be entered, in the appropriate column on the left, with the difference between true latitude and the nearest tabular latitude which is *less* than the true latitude; and with the argument at the top which is the nearest value of the difference between the times for the tabular latitude and the next higher one; the correction so obtained is applied to the time for the tabular latitude; the sign of the correction can be seen by inspection. It is to be noted that the interpolation is not linear, so that when using this table it is essential to take out the tabular phenomenon for the latitude *less* than the true latitude.

TABLE II—FOR LONGITUDE

Long. East or West	Difference between the times for given date and preceding date (for east longitude) or for given date and following date (for west longitude)																							
	10 ^m 20 ^m 30 ^m			40 ^m 50 ^m 60 ^m			1 ^h + 20 ^m 30 ^m			1 ^h + 40 ^m 50 ^m 60 ^m			2 ^h 10 ^m	2 ^h 20 ^m	2 ^h 30 ^m	2 ^h 40 ^m	2 ^h 50 ^m	3 ^h 00 ^m						
°	m	m	m	m	m	m	m	m	m	m	m	m	m	h	m	h	m	h	m	h	m	h	m	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 00	0	00	0	00	0	00	0	00	0	00
10	0	1	1	1	1	2	2	2	2	3	3	3	04	04	04	04	04	05	05	05	05	05	05	05
20	1	1	2	2	3	3	4	4	5	6	6	7	07	08	08	08	09	09	10	10	10	10	10	10
30	1	2	2	3	4	5	6	7	7	8	9	10	11	12	12	12	13	14	14	15	15	15	15	15
40	1	2	3	4	6	7	8	9	10	11	12	13	14	16	17	18	19	19	20	20	20	20	20	20
50	1	3	4	6	7	8	10	11	12	14	15	17	0 18	0 19	0 21	0 22	0 24	0 25	0 25	0 25	0 25	0 25	0 25	0 25
60	2	3	5	7	8	10	12	13	15	17	18	20	22	23	25	27	28	30	30	30	30	30	30	30
70	2	4	6	8	10	12	14	16	17	19	21	23	25	27	29	31	33	35	35	35	35	35	35	35
80	2	4	7	9	11	13	16	18	20	22	24	27	29	31	33	36	38	40	40	40	40	40	40	40
90	2	5	7	10	12	15	17	20	22	25	27	30	32	35	37	40	42	45	45	45	45	45	45	45
100	3	6	8	11	14	17	19	22	25	28	31	33	0 36	0 39	0 42	0 44	0 47	0 50	50	50	50	50	50	50
110	3	6	9	12	15	18	21	24	27	31	34	37	40	43	46	49	0 52	0 55	55	55	55	55	55	55
120	3	7	10	13	17	20	23	27	30	33	37	40	43	47	50	53	0 57	1 00	1 00	1 00	1 00	1 00	1 00	1 00
130	4	7	11	14	18	22	25	29	32	36	40	43	47	51	54	0 58	1 01	1 05	1 05	1 05	1 05	1 05	1 05	1 05
140	4	8	12	16	19	23	27	31	35	39	43	47	51	54	0 58	1 02	1 06	1 10	1 10	1 10	1 10	1 10	1 10	1 10
150	4	8	13	17	21	25	29	33	38	42	46	50	0 54	0 58	1 03	1 07	1 11	1 15	1 15	1 15	1 15	1 15	1 15	1 15
160	4	9	13	18	22	27	31	36	40	44	49	53	0 58	1 02	1 07	1 11	1 16	1 20	1 20	1 20	1 20	1 20	1 20	1 20
170	5	9	14	19	24	28	33	38	42	47	52	57	1 01	1 06	1 11	1 16	1 20	1 25	1 25	1 25	1 25	1 25	1 25	1 25
180	5	10	15	20	25	30	35	40	45	50	55	60	1 05	1 10	1 15	1 20	1 25	1 30	1 30	1 30	1 30	1 30	1 30	1 30

Table II is for interpolating the L.M.T. of moonrise, moonset and the Moon's meridian passage for longitude. It is entered with longitude and with the difference between the times for the given date and for the preceding date (in east longitudes) or following date (in west longitudes). The correction is normally *added* for west longitudes and *subtracted* for east longitudes, but if, as occasionally happens, the times become earlier each day instead of later, the signs of the corrections must be reversed.

INDEX TO SELECTED STARS

Name	No.	Mag.	S.H.A.	Dec.
<i>Acamar</i>	7	3.1	316°	S. 40°
<i>Achernar</i>	5	0.6	336	S. 57
<i>Acrux</i>	30	1.1	174	S. 63
<i>Adhara</i>	19	1.6	256	S. 29
<i>Aldebaran</i>	10	1.1	291	N. 16
<i>Alioth</i>	32	1.7	167	N. 56
<i>Alkaid</i>	34	1.9	153	N. 49
<i>Al Na'ir</i>	55	2.2	28	S. 47
<i>Alnilam</i>	15	1.8	276	S. 1
<i>Alphard</i>	25	2.2	218	S. 9
<i>Alphecca</i>	41	2.3	127	N. 27
<i>Alpheratz</i>	1	2.2	358	N. 29
<i>Altair</i>	51	0.9	63	N. 9
<i>Ankaa</i>	2	2.4	354	S. 42
<i>Antares</i>	42	1.2	113	S. 26
<i>Arcturus</i>	37	0.2	146	N. 19
<i>Atria</i>	43	1.9	109	S. 69
<i>Avior</i>	22	1.7	235	S. 59
<i>Bellatrix</i>	13	1.7	279	N. 6
<i>Betelgeuse</i>	16	Var.*	272	N. 7
<i>Canopus</i>	17	-0.9	264	S. 53
<i>Capella</i>	12	0.2	281	N. 46
<i>Deneb</i>	53	1.3	50	N. 45
<i>Denebola</i>	28	2.2	183	N. 15
<i>Diphda</i>	4	2.2	349	S. 18
<i>Dubhe</i>	27	2.0	195	N. 62
<i>Elnath</i>	14	1.8	279	N. 29
<i>Eltanin</i>	47	2.4	91	N. 51
<i>Enif</i>	54	2.5	34	N. 10
<i>Fomalhaut</i>	56	1.3	16	S. 30
<i>Gacrux</i>	31	1.6	173	S. 57
<i>Gienah</i>	29	2.8	176	S. 17
<i>Hadar</i>	35	0.9	150	S. 60
<i>Hamal</i>	6	2.2	329	N. 23
<i>Kaus Australis</i>	48	2.0	84	S. 34
<i>Kochab</i>	40	2.2	137	N. 74
<i>Markab</i>	57	2.6	14	N. 15
<i>Menkar</i>	8	2.8	315	N. 4
<i>Menkent</i>	36	2.3	149	S. 36
<i>Miaplacidus</i>	24	1.8	222	S. 70
<i>Mirfak</i>	9	1.9	309	N. 50
<i>Nunki</i>	50	2.1	77	S. 26
<i>Peacock</i>	52	2.1	54	S. 57
<i>Pollux</i>	21	1.2	244	N. 28
<i>Procyon</i>	20	0.5	246	N. 5
<i>Rasalhague</i>	46	2.1	97	N. 13
<i>Regulus</i>	26	1.3	208	N. 12
<i>Rigel</i>	11	0.3	282	S. 8
<i>Rigil Kentaurus</i>	38	0.1	141	S. 61
<i>Sabik</i>	44	2.6	103	S. 16
<i>Schedar</i>	3	2.5	350	N. 56
<i>Shaula</i>	45	1.7	97	S. 37
<i>Sirius</i>	18	-1.6	259	S. 17
<i>Spica</i>	33	1.2	159	S. 11
<i>Suhail</i>	23	2.2	223	S. 43
<i>Vega</i>	49	0.1	81	N. 39
<i>Zubenelgenubi</i>	39	2.9	138	S. 16

No.	Name	Mag.	S.H.A.	Dec.
1	<i>Alpheratz</i>	2.2	358°	N. 29°
2	<i>Ankaa</i>	2.4	354	S. 42
3	<i>Schedar</i>	2.5	350	N. 56
4	<i>Diphda</i>	2.2	349	S. 18
5	<i>Achernar</i>	0.6	336	S. 57
6	<i>Hamal</i>	2.2	329	N. 23
7	<i>Acamar</i>	3.1	316	S. 40
8	<i>Menkar</i>	2.8	315	N. 4
9	<i>Mirfak</i>	1.9	309	N. 50
10	<i>Aldebaran</i>	1.1	291	N. 16
11	<i>Rigel</i>	0.3	282	S. 8
12	<i>Capella</i>	0.2	281	N. 46
13	<i>Bellatrix</i>	1.7	279	N. 6
14	<i>Elnath</i>	1.8	279	N. 29
15	<i>Alnilam</i>	1.8	276	S. 1
16	<i>Betelgeuse</i>	Var.*	272	N. 7
17	<i>Canopus</i>	-0.9	264	S. 53
18	<i>Sirius</i>	-1.6	259	S. 17
19	<i>Adhara</i>	1.6	256	S. 29
20	<i>Procyon</i>	0.5	246	N. 5
21	<i>Pollux</i>	1.2	244	N. 28
22	<i>Avior</i>	1.7	235	S. 59
23	<i>Suhail</i>	2.2	223	S. 43
24	<i>Miaplacidus</i>	1.8	222	S. 70
25	<i>Alphard</i>	2.2	218	S. 9
26	<i>Regulus</i>	1.3	208	N. 12
27	<i>Dubhe</i>	2.0	195	N. 62
28	<i>Denebola</i>	2.2	183	N. 15
29	<i>Gienah</i>	2.8	176	S. 17
30	<i>Acrux</i>	1.1	174	S. 63
31	<i>Gacrux</i>	1.6	173	S. 57
32	<i>Alioth</i>	1.7	167	N. 56
33	<i>Spica</i>	1.2	159	S. 11
34	<i>Alkaid</i>	1.9	153	N. 49
35	<i>Hadar</i>	0.9	150	S. 60
36	<i>Menkent</i>	2.3	149	S. 36
37	<i>Arcturus</i>	0.2	146	N. 19
38	<i>Rigil Kentaurus</i>	0.1	141	S. 61
39	<i>Zubenelgenubi</i>	2.9	138	S. 16
40	<i>Kochab</i>	2.2	137	N. 74
41	<i>Alphecca</i>	2.3	127	N. 27
42	<i>Antares</i>	1.2	113	S. 26
43	<i>Atria</i>	1.9	109	S. 69
44	<i>Sabik</i>	2.6	103	S. 16
45	<i>Shaula</i>	1.7	97	S. 37
46	<i>Rasalhague</i>	2.1	97	N. 13
47	<i>Eltanin</i>	2.4	91	N. 51
48	<i>Kaus Australis</i>	2.0	84	S. 34
49	<i>Vega</i>	0.1	81	N. 39
50	<i>Nunki</i>	2.1	77	S. 26
51	<i>Altair</i>	0.9	63	N. 9
52	<i>Peacock</i>	2.1	54	S. 57
53	<i>Deneb</i>	1.3	50	N. 45
54	<i>Enif</i>	2.5	34	N. 10
55	<i>Al Na'ir</i>	2.2	28	S. 47
56	<i>Fomalhaut</i>	1.3	16	S. 30
57	<i>Markab</i>	2.6	14	N. 15

ALTITUDE CORRECTION TABLES 0°-35°-MOON

App. Alt.	0°-4°	5°-9°	10°-14°	15°-19°	20°-24°	25°-29°	30°-34°	App. Alt.
	Corr ^a	Corr ^a	Corr ^a	Corr ^a	Corr ^a	Corr ^a	Corr ^a	
00	0 33.8	5 58.2	10 62.1	15 62.8	20 62.2	25 60.8	30 58.9	00
10	35.9	58.5	62.2	62.8	62.1	60.8	58.8	10
20	37.8	58.7	62.2	62.8	62.1	60.7	58.8	20
30	39.6	58.9	62.3	62.8	62.1	60.7	58.7	30
40	41.2	59.1	62.3	62.8	62.0	60.6	58.6	40
50	42.6	59.3	62.4	62.7	62.0	60.6	58.5	50
00	I 44.0	6 59.5	11 62.4	16 62.7	21 62.0	26 60.5	31 58.5	00
10	45.2	59.7	62.4	62.7	61.9	60.4	58.4	10
20	46.3	59.9	62.5	62.7	61.9	60.4	58.3	20
30	47.3	60.0	62.5	62.7	61.9	60.3	58.2	30
40	48.3	60.2	62.5	62.7	61.8	60.3	58.2	40
50	49.2	60.3	62.6	62.7	61.8	60.2	58.1	50
00	2 50.0	7 60.5	12 62.6	17 62.7	22 61.7	27 60.1	32 58.0	00
10	50.8	60.6	62.6	62.6	61.7	60.1	57.9	10
20	51.4	60.7	62.6	62.6	61.6	60.0	57.8	20
30	52.1	60.9	62.7	62.6	61.6	59.9	57.8	30
40	52.7	61.0	62.7	62.6	61.5	59.9	57.7	40
50	53.3	61.1	62.7	62.6	61.5	59.8	57.6	50
00	3 53.8	8 61.2	13 62.7	18 62.5	23 61.5	28 59.7	33 57.5	00
10	54.3	61.3	62.7	62.5	61.4	59.7	57.4	10
20	54.8	61.4	62.7	62.5	61.4	59.6	57.4	20
30	55.2	61.5	62.8	62.5	61.3	59.6	57.3	30
40	55.6	61.6	62.8	62.4	61.3	59.5	57.2	40
50	56.0	61.6	62.8	62.4	61.2	59.4	57.1	50
00	4 56.4	9 61.7	14 62.8	19 62.4	24 61.2	29 59.3	34 57.0	00
10	56.7	61.8	62.8	62.3	61.1	59.3	56.9	10
20	57.1	61.9	62.8	62.3	61.1	59.2	56.9	20
30	57.4	61.9	62.8	62.3	61.0	59.1	56.8	30
40	57.7	62.0	62.8	62.2	60.9	59.1	56.7	40
50	57.9	62.1	62.8	62.2	60.9	59.0	56.6	50

H.P.	L	U	L	U	L	U	L	U	H.P.
54.0	0.3	0.9	0.3	0.9	0.4	1.0	0.5	1.1	54.0
54.3	0.7	1.1	0.7	1.2	0.7	1.2	0.8	1.3	54.3
54.6	1.1	1.4	1.1	1.4	1.1	1.4	1.2	1.5	54.6
54.9	1.4	1.6	1.5	1.6	1.5	1.6	1.6	1.7	54.9
55.2	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	55.2
55.5	2.2	2.0	2.2	2.0	2.3	2.1	2.3	2.1	55.5
55.8	2.6	2.2	2.6	2.2	2.7	2.3	2.7	2.4	55.8
56.1	3.0	2.4	3.0	2.5	3.0	2.5	3.1	2.6	56.1
56.4	3.4	2.7	3.4	2.7	3.4	2.7	3.4	2.8	56.4
56.7	3.7	2.9	3.7	2.9	3.8	2.9	3.8	3.0	56.7
57.0	4.1	3.1	4.1	3.1	4.1	3.1	4.2	3.1	57.0
57.3	4.5	3.3	4.5	3.3	4.5	3.3	4.5	3.4	57.3
57.6	4.9	3.5	4.9	3.5	4.9	3.5	4.9	3.5	57.6
57.9	5.3	3.8	5.3	3.8	5.2	3.8	5.2	3.7	57.9
58.2	5.6	4.0	5.6	4.0	5.6	4.0	5.6	3.9	58.2
58.5	6.0	4.2	6.0	4.2	6.0	4.2	5.9	4.1	58.5
58.8	6.4	4.4	6.4	4.4	6.3	4.4	6.3	4.3	58.8
59.1	6.8	4.6	6.8	4.6	6.7	4.6	6.6	4.5	59.1
59.4	7.2	4.8	7.1	4.8	7.1	4.8	7.0	4.7	59.4
59.7	7.5	5.1	7.5	5.0	7.5	5.0	7.4	4.9	59.7
60.0	7.9	5.3	7.9	5.3	7.8	5.2	7.7	5.0	60.0
60.3	8.3	5.5	8.3	5.5	8.2	5.4	8.1	5.3	60.3
60.6	8.7	5.7	8.7	5.7	8.6	5.6	8.5	5.5	60.6
60.9	9.1	5.9	9.0	5.9	8.9	5.8	8.8	5.7	60.9
61.2	9.5	6.2	9.4	6.1	9.3	6.0	9.2	5.9	61.2
61.5	9.8	6.4	9.8	6.3	9.7	6.2	9.5	6.1	61.5

DIP								
Ht. of Eye		Corr ^a	Ht. of Eye		Corr ^a	Ht. of Eye		Corr ^a
ft.			ft.			ft.		
4.0	-2.0		24	-4.9		63	-7.8	
4.4	-2.1		26	-5.0		65	-7.9	
4.9	-2.2		27	-5.1		67	-8.0	
5.3	-2.3		28	-5.2		68	-8.1	
5.8	-2.4		29	-5.3		70	-8.2	
6.3	-2.5		30	-5.4		72	-8.3	
6.9	-2.6		31	-5.5		74	-8.4	
7.4	-2.7		32	-5.6		75	-8.5	
8.0	-2.8		33	-5.7		77	-8.6	
8.6	-2.9		35	-5.8		79	-8.7	
9.2	-3.0		36	-5.9		81	-8.8	
9.8	-3.1		37	-6.0		83	-8.9	
10.5	-3.2		38	-6.1		85	-9.0	
11.2	-3.3		40	-6.2		87	-9.1	
11.9	-3.4		41	-6.3		88	-9.2	
12.6	-3.5		42	-6.4		90	-9.3	
13.3	-3.6		44	-6.5		92	-9.4	
14.1	-3.7		45	-6.6		94	-9.5	
14.9	-3.8		47	-6.7		96	-9.6	
15.7	-3.9		48	-6.8		98	-9.7	
16.5	-4.0		49	-6.9		101	-9.8	
17.4	-4.1		51	-7.0		103	-9.9	
18.3	-4.2		52	-7.1		105	-10.0	
19.1	-4.3		54	-7.2		107	-10.1	
20.1	-4.4		55	-7.3		109	-10.2	
21.0	-4.5		57	-7.4		111	-10.3	
22.0	-4.6		58	-7.5		113	-10.4	
22.9	-4.7		60	-7.6		116	-10.5	
23.9	-4.8		62	-7.7		118	-10.6	
24.9			63			120		

MOON CORRECTION TABLE

The correction is in two parts; the first correction is taken from the upper part of the table with argument apparent altitude, and the second from the lower part, with argument H.P., in the same column as that from which the first correction was taken. Separate corrections are given in the lower part for lower (L) and upper (U) limbs. All corrections are to be added to apparent altitude, but 30' is to be subtracted from the altitude of the upper limb.

For corrections for pressure and temperature see page A4.

For bubble sextant observations ignore dip, take the mean of upper and lower limb corrections and subtract 15' from the altitude.

App. Alt. = Apparent altitude
= Sextant altitude corrected for index error and dip.

ALTITUDE CORRECTION TABLES 35°-90°-MOON

App. Alt.	35°-39°	40°-44°	45°-49°	50°-54°	55°-59°	60°-64°	65°-69°	70°-74°	75°-79°	80°-84°	85°-89°	App. Alt.
	Corr ⁿ	Corr ⁿ	Corr ⁿ	Corr ⁿ	Corr ⁿ	Corr ⁿ	Corr ⁿ	Corr ⁿ	Corr ⁿ	Corr ⁿ	Corr ⁿ	
00	35 56.5	40 53.7	45 50.5	50 46.9	55 43.1	60 38.9	65 34.6	70 30.1	75 25.3	80 20.5	85 15.6	00
10	56.4	53.6	50.4	46.8	42.9	38.8	34.4	29.9	25.2	20.4	15.5	10
20	56.3	53.5	50.2	46.7	42.8	38.7	34.3	29.7	25.0	20.2	15.3	20
30	56.2	53.4	50.1	46.5	42.7	38.5	34.1	29.6	24.9	20.0	15.1	30
40	56.2	53.3	50.0	46.4	42.5	38.4	34.0	29.4	24.7	19.9	15.0	40
50	56.1	53.2	49.9	46.3	42.4	38.2	33.8	29.3	24.5	19.7	14.8	50
00	36 56.0	41 53.1	46 49.8	51 46.2	56 42.3	61 38.1	66 33.7	71 29.1	76 24.4	81 19.6	86 14.6	00
10	55.9	53.0	49.7	46.0	42.1	37.9	33.5	29.0	24.2	19.4	14.5	10
20	55.8	52.8	49.5	45.9	42.0	37.8	33.4	28.8	24.1	19.2	14.3	20
30	55.7	52.7	49.4	45.8	41.8	37.7	33.2	28.7	23.9	19.1	14.1	30
40	55.6	52.6	49.3	45.7	41.7	37.5	33.1	28.5	23.8	18.9	14.0	40
50	55.5	52.5	49.2	45.5	41.6	37.4	32.9	28.3	23.6	18.7	13.8	50
00	37 55.4	42 52.4	47 49.1	52 45.4	57 41.4	62 37.2	67 32.8	72 28.2	77 23.4	82 18.6	87 13.7	00
10	55.3	52.3	49.0	45.3	41.3	37.1	32.6	28.0	23.3	18.4	13.5	10
20	55.2	52.2	48.8	45.2	41.2	36.9	32.5	27.9	23.1	18.2	13.3	20
30	55.1	52.1	48.7	45.0	41.0	36.8	32.3	27.7	22.9	18.1	13.2	30
40	55.0	52.0	48.6	44.9	40.9	36.6	32.2	27.6	22.8	17.9	13.0	40
50	55.0	51.9	48.5	44.8	40.8	36.5	32.0	27.4	22.6	17.8	12.8	50
00	38 54.9	43 51.8	48 48.4	53 44.6	58 40.6	63 36.4	68 31.9	73 27.2	78 22.5	83 17.6	88 12.7	00
10	54.8	51.7	48.2	44.5	40.5	36.2	31.7	27.1	22.3	17.4	12.5	10
20	54.7	51.6	48.1	44.4	40.3	36.1	31.6	26.9	22.1	17.3	12.3	20
30	54.6	51.5	48.0	44.2	40.2	35.9	31.4	26.8	22.0	17.1	12.2	30
40	54.5	51.4	47.9	44.1	40.1	35.8	31.3	26.6	21.8	16.9	12.0	40
50	54.4	51.2	47.8	44.0	39.9	35.6	31.1	26.5	21.7	16.8	11.8	50
00	39 54.3	44 51.1	49 47.6	54 43.9	59 39.8	64 35.5	69 31.0	74 26.3	79 21.5	84 16.6	89 11.7	00
10	54.2	51.0	47.5	43.7	39.6	35.3	30.8	26.1	21.3	16.5	11.5	10
20	54.1	50.9	47.4	43.6	39.5	35.2	30.7	26.0	21.2	16.3	11.4	20
30	54.0	50.8	47.3	43.5	39.4	35.0	30.5	25.8	21.0	16.1	11.2	30
40	53.9	50.7	47.2	43.3	39.2	34.9	30.4	25.7	20.9	16.0	11.0	40
50	53.8	50.6	47.0	43.2	39.1	34.7	30.2	25.5	20.7	15.8	10.9	50
H.P.	L U	L U	L U	L U	L U	L U	L U	L U	L U	L U	L U	H.P.
54.0	1.1 1.7	1.3 1.9	1.5 2.1	1.7 2.4	2.0 2.6	2.3 2.9	2.6 3.2	2.9 3.5	3.2 3.8	3.5 4.1	3.8 4.5	54.0
54.3	1.4 1.8	1.6 2.0	1.8 2.2	2.0 2.5	2.3 2.7	2.5 3.0	2.8 3.2	3.0 3.5	3.3 3.8	3.6 4.1	3.9 4.4	54.3
54.6	1.7 2.0	1.9 2.2	2.1 2.4	2.3 2.6	2.5 2.8	2.7 3.0	3.0 3.3	3.2 3.5	3.5 3.8	3.7 4.1	4.0 4.3	54.6
54.9	2.0 2.2	2.2 2.3	2.3 2.5	2.5 2.7	2.7 2.9	2.9 3.1	3.2 3.3	3.4 3.5	3.6 3.8	3.9 4.0	4.1 4.3	54.9
55.2	2.3 2.3	2.5 2.4	2.6 2.6	2.8 2.8	3.0 2.9	3.2 3.1	3.4 3.3	3.6 3.5	3.8 3.7	4.0 4.0	4.2 4.2	55.2
55.5	2.7 2.5	2.8 2.6	2.9 2.7	3.1 2.9	3.2 3.0	3.4 3.2	3.6 3.4	3.7 3.5	3.9 3.7	4.1 3.9	4.3 4.1	55.5
55.8	3.0 2.6	3.1 2.7	3.2 2.8	3.3 3.0	3.5 3.1	3.6 3.3	3.8 3.4	3.9 3.6	4.1 3.7	4.2 3.9	4.4 4.0	55.8
56.1	3.3 2.8	3.4 2.9	3.5 3.0	3.6 3.1	3.7 3.2	3.8 3.3	4.0 3.4	4.1 3.6	4.2 3.7	4.4 3.8	4.5 4.0	56.1
56.4	3.6 2.9	3.7 3.0	3.8 3.1	3.9 3.2	3.9 3.3	4.0 3.4	4.1 3.5	4.3 3.6	4.4 3.7	4.5 3.8	4.6 3.9	56.4
56.7	3.9 3.1	4.0 3.1	4.1 3.2	4.1 3.3	4.2 3.3	4.3 3.4	4.3 3.5	4.4 3.6	4.5 3.7	4.6 3.8	4.7 3.8	56.7
57.0	4.3 3.2	4.3 3.3	4.3 3.3	4.4 3.4	4.4 3.4	4.5 3.5	4.5 3.5	4.6 3.6	4.7 3.6	4.7 3.7	4.8 3.8	57.0
57.3	4.6 3.4	4.6 3.4	4.6 3.4	4.6 3.5	4.7 3.5	4.7 3.5	4.7 3.6	4.8 3.6	4.8 3.6	4.8 3.7	4.9 3.7	57.3
57.6	4.9 3.6	4.9 3.6	4.9 3.6	4.9 3.6	4.9 3.6	4.9 3.6	4.9 3.6	4.9 3.6	5.0 3.6	5.0 3.6	5.0 3.6	57.6
57.9	5.2 3.7	5.2 3.7	5.2 3.7	5.2 3.7	5.2 3.7	5.1 3.6	5.1 3.6	5.1 3.6	5.1 3.6	5.1 3.6	5.1 3.6	57.9
58.2	5.5 3.9	5.5 3.8	5.5 3.8	5.4 3.8	5.4 3.7	5.4 3.7	5.3 3.7	5.3 3.6	5.2 3.6	5.2 3.5	5.2 3.5	58.2
58.5	5.9 4.0	5.8 4.0	5.8 3.9	5.7 3.9	5.6 3.8	5.6 3.8	5.5 3.7	5.5 3.6	5.4 3.6	5.3 3.5	5.3 3.4	58.5
58.8	6.2 4.2	6.1 4.1	6.0 4.1	6.0 4.0	5.9 3.9	5.8 3.8	5.7 3.7	5.6 3.6	5.5 3.5	5.4 3.5	5.3 3.4	58.8
59.1	6.5 4.3	6.4 4.3	6.3 4.2	6.2 4.1	6.1 4.0	6.0 3.9	5.9 3.8	5.8 3.6	5.7 3.5	5.6 3.4	5.4 3.3	59.1
59.4	6.8 4.5	6.7 4.4	6.6 4.3	6.5 4.2	6.4 4.1	6.2 3.9	6.1 3.8	6.0 3.7	5.8 3.5	5.7 3.4	5.5 3.2	59.4
59.7	7.1 4.6	7.0 4.5	6.9 4.4	6.8 4.3	6.6 4.1	6.5 4.0	6.3 3.8	6.2 3.7	6.0 3.5	5.8 3.3	5.6 3.2	59.7
60.0	7.5 4.8	7.3 4.7	7.2 4.5	7.0 4.4	6.9 4.2	6.7 4.0	6.5 3.9	6.3 3.7	6.1 3.5	5.9 3.3	5.7 3.1	60.0
60.3	7.8 5.0	7.6 4.8	7.5 4.7	7.3 4.5	7.1 4.3	6.9 4.1	6.7 3.9	6.5 3.7	6.3 3.5	6.0 3.2	5.8 3.0	60.3
60.6	8.1 5.1	7.9 5.0	7.7 4.8	7.6 4.6	7.3 4.4	7.1 4.2	6.9 3.9	6.7 3.7	6.4 3.4	6.2 3.2	5.9 2.9	60.6
60.9	8.4 5.3	8.2 5.1	8.0 4.9	7.8 4.7	7.6 4.5	7.3 4.2	7.1 4.0	6.8 3.7	6.6 3.4	6.3 3.2	6.0 2.9	60.9
61.2	8.7 5.4	8.5 5.2	8.3 5.0	8.1 4.8	7.8 4.5	7.6 4.3	7.3 4.0	7.0 3.7	6.7 3.4	6.4 3.1	6.1 2.8	61.2
61.5	9.1 5.6	8.8 5.4	8.6 5.1	8.3 4.9	8.1 4.6	7.8 4.3	7.5 4.0	7.2 3.7	6.9 3.4	6.5 3.1	6.2 2.7	61.5

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